

# Upper Mississippi River & Great Lakes Region Joint Venture

Implementation Plan • 1998

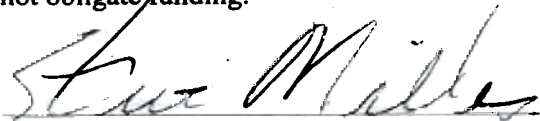


North American Waterfowl  
Management Plan

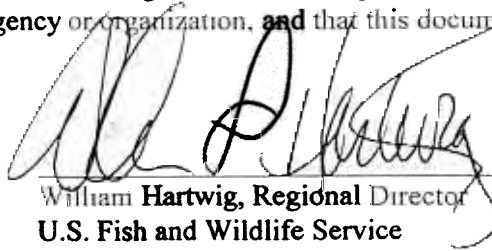
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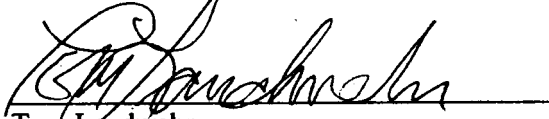
The members of the Upper Mississippi River and Great Lakes Region Joint Venture Management Board support the goals, objectives and strategies contained within this 1998 Implementation Plan Update, and they are committed to its implementation. This commitment recognizes that funding for this effort is subject to annual budgetary constraints within each agency or organization, and that this document does not obligate funding.



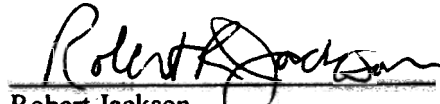
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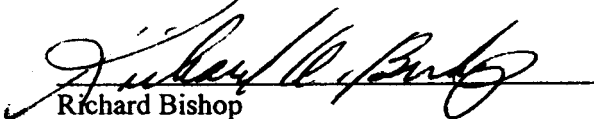
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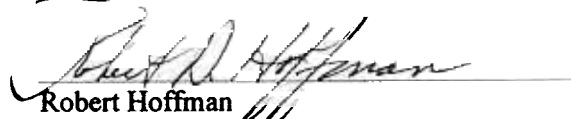
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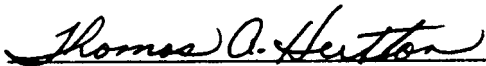
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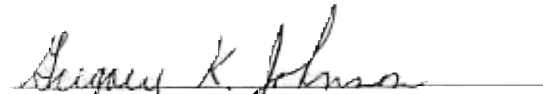
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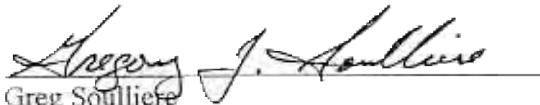
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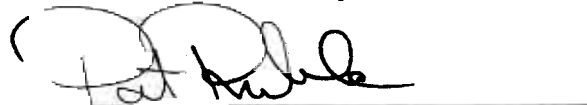
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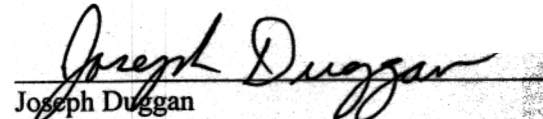
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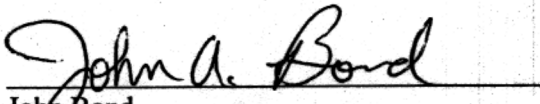
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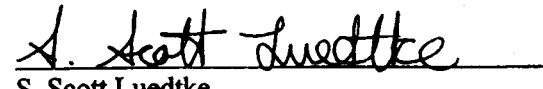
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## **FORWARD**

We wish to express thanks to members of the Implementation Update Rewrite Committee for their dedication and insight:

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## **EXECUTIVE SUMMARY**

The North American Waterfowl Management Plan (Plan) is the most ambitious continental wildlife conservation initiative ever attempted. It seeks to restore waterfowl populations in Canada, the United States, and Mexico to the levels observed during the 1970's. Since its beginning in 1986, several factors have combined to produce a remarkably successful effort. Tremendous habitat conservation achievements by many partners and improvements in agricultural conservation policies and programs coincided with exceptionally good hydrological conditions over much of the mid-continent breeding areas during the past three years to produce a striking rebound in most waterfowl populations (1998 Plan Update).

The Upper Mississippi River and Great Lakes Region Joint Venture (Joint Venture) has been responsible for a large part of the Plan's success. The Joint Venture was established in 1993 in response to the needs of breeding and migrating waterfowl in the northern part of the Mississippi Flyway. In 1997, the Joint Venture expanded in size and scope, adding biologically significant migration areas, and parts of other joint ventures for ease of administration. In total, Joint Venture partners have protected, restored and enhanced 313,179 acres of waterfowl habitat to date, and we are well on our way to achieving the production and migration population objectives stepped down from the Plan.

The remarkable achievements of the Plan notwithstanding, it must be realized that agricultural policies may change, climatic drought cycles will continue, and human development pressures will increase. Indeed, a few waterfowl species have not recovered from long-term declines, and others have dramatically shifted their traditional migration patterns due to habitat changes. It is clear that wildlife conservationists must continue, if not accelerate, their efforts in protecting and restoring important habitats.

The 1998 Update to the Plan has set the course to strengthen our efforts. It outlines three visions for the future which expand upon the Plan's successful legacy over the past 12 years: a strong biological foundation, a landscape approach to conservation, and the expansion of public-private partnerships that include other migratory bird interests and initiatives. These visions encourage waterfowl conservationists to support continental research and monitoring of bird population/habitat relationships, to adjust habitat conservation strategies accordingly, and to embrace landscape planning which acknowledges economic stability and biodiversity as necessary components. It is an exciting time to be involved with the Plan as we continue to refine the delivery of habitat to provide multiple benefits to wildlife and the people of all three countries.

This Joint Venture Implementation Plan Update clearly incorporates the new visions of the Plan Update with expansion of population and species objectives, an increased emphasis on monitoring and evaluation, and an outreach strategy focusing on development of new

partnerships. The goal of the Joint Venture is “to increase populations of waterfowl and other wetland wildlife by protecting, restoring and enhancing wetland and associated upland habitats within the Joint Venture region.” Our population objectives have been set at 1,542,000 breeding ducks, and 773 million duck use-days during fall migration. These objectives will contribute to the overall Plan objectives of 62 million breeding ducks and 100 million ducks in the fall flight. We will achieve our objectives by conserving 9.1 million acres of habitat in production focus areas, and 533,000 acres of habitat in migration focus areas (existing plus additional acres). These habitat figures represent a 7% and 45% increase, respectively, from current figures in the Joint Venture. Objective 3, our first ever “nongame” objective, states that, when consistent with our population objectives, we will increase habitats for non-waterfowl species with an emphasis on nongame migratory birds. Finally, our strategies for these objectives are to continue wetland and associated upland habitat protection, restoration and enhancement using the variety of tools at our disposal, prioritizing our efforts by focus areas.

The Upper Mississippi River and Great Lakes Region Joint Venture partners will continue our habitat and partnership work with vigor, broadening our horizons as the Plan moves into the next century. The cost estimate to achieve what is outlined in this plan is \$52 million annually. Our course over the next 15 years will be challenging and rewarding.





(Original Joint Venture Area as established 1993)

Upper Mississippi River/Great Lakes Joint Venture Area.

## INTRODUCTION

In 1986, the U.S. and Canada signed the North American Waterfowl Management Plan (Plan), a strategic plan to address concerns about long-term declines in waterfowl populations, linked to dramatic losses of wetlands and upland nesting habitats. The Plan identified habitat loss and degradation as the major waterfowl management problem in North America.

The Plan established population goals for various species of ducks, geese and swans, based on historical years of relative abundance. For ducks, the Plan goal is 62 million breeding birds, under average environmental conditions, by the year 2000. This population level would provide 100 million birds in the fall flight. The population goals were to be achieved through various habitat objectives, established for waterfowl habitat areas of major concern. These habitat areas of concern were later formed into geographic areas termed joint ventures.

Six joint ventures were originally established for the Plan in the U.S: Prairie Pothole, Lower Great Lakes/St. Lawrence Basin, Atlantic Coast, Lower Mississippi Valley, Gulf Coast, and Central Valley. These areas were determined to be the initial priority habitat areas of concern to waterfowl. Habitat objectives (acres to be protected, restored and enhanced) were established for each of these joint ventures based on their importance as breeding or wintering areas for species of concern. Coalitions (“partnerships”) of public and private organizations and individuals became the delivery mechanism for these habitat needs.

Several changes to the Plan have occurred since its development in 1986. As partners in additional geographic areas of concern became organized, new joint ventures were established, including the **Upper Mississippi River and Great Lakes Region Joint Venture (Joint Venture)** in 1993 (**Figure 1**). The original implementation plan for the Joint Venture stepped down the goals of the Plan, and created spring (breeding) and fall duck population objectives, as well as acreage objectives for wetland and upland habitats on public and private land. General strategies for achieving these objectives were also included. Member states then further stepped down these Joint Venture objectives into state-specific objectives and strategies.

The Plan was updated in 1994, and Mexico became a full partner, completing the continental approach to waterfowl conservation. To-date habitat accomplishments were highlighted, as well as the “gaps”--indicating there was still progress to be made. Important waterfowl habitat areas in North America were now tallied at 12 joint ventures, 25 waterfowl habitat areas of major concern, and 32 priority wetland areas in Mexico.

The 1994 Plan Update also expanded the vision and commitment to waterfowl conservation, with a list of population and habitat recommendations. Of particular note were the recommendations to: 1) maintain and improve waterfowl population monitoring systems; 2) base waterfowl population and habitat management decisions on good science; 3) research and clarify the links between waterfowl and other wildlife populations; 4) develop and

periodically adjust joint venture habitat objectives necessary to support the Plan's population goals; and 5) at the joint venture level, develop population goals and habitat objectives, or adopt guidelines and criteria, for other species of migratory birds or wildlife of significance.

\* \* \* \* \*

### **“The Upper Mississippi River & Great Lakes Region Joint Venture Evolves”**

In 1996, partners throughout the southern portion of the Joint Venture began discussions about a Midwest big rivers joint venture, which would focus attention on mid-latitude habitats that provide waterfowl with critical feeding and resting areas during migration. The major points of the discussions included:

The geographic location of the Midwest big rivers region (between important breeding and wintering areas on the continent) make it of strategic importance to waterfowl in the Central and Mississippi Flyways.

Migrating birds have key nutritional requirements.

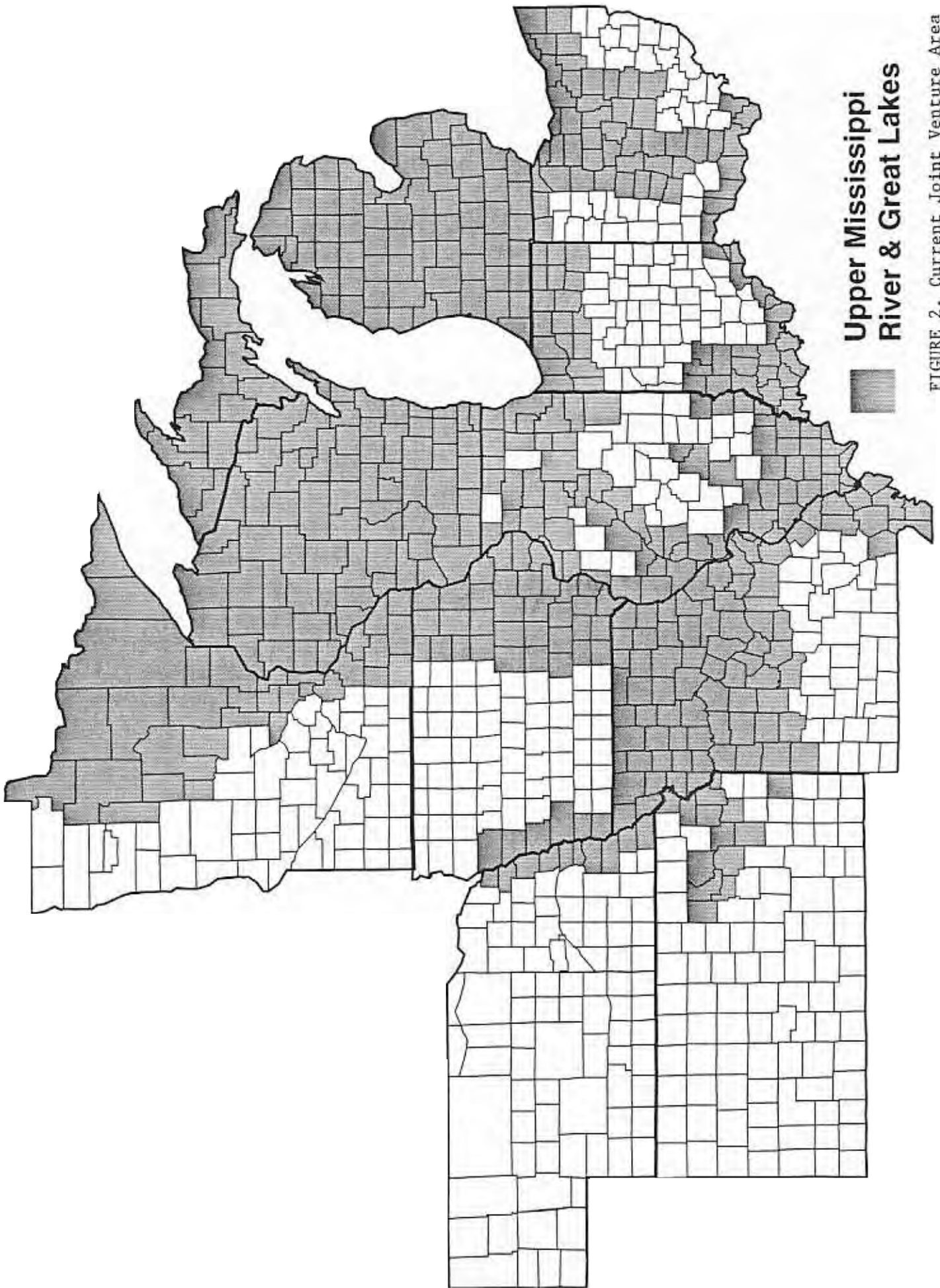
Various habitat problems are associated with migration corridors, including channelization, deterioration and loss of bottomland forests, declining aquatic food resources, sedimentation and loss of backwater habitats, and loss/deterioration of floodplain emergent wetlands.

A focus on mid-migration habitats would create new opportunities to protect these wetlands for the benefit of waterfowl and a multitude of other migratory birds.

Though there was agreement on the need for the Plan to add a focus on mid-migration habitats, some partners felt the administrative burden of an additional joint venture was too great. Thus was born the idea to add a “mid-migration objective” to the Joint Venture, to be measured through habitat accomplishments and Duck Use-Days--a reflection of the number of ducks utilizing Joint Venture habitats during migration.

After concurrence from the Central and Mississippi Flyway Councils and approval by the North American Waterfowl Management Plan Committee, counties with important mid-latitude migration habitats were added to the Joint Venture. In addition, mid-latitude states (Missouri, Illinois and Indiana) reduced their administrative burden and requested that counties formerly within the Lower Mississippi Valley Joint Venture be moved to the Upper Mississippi Joint Venture. These changes were added to the change that occurred in 1996, when the Lower Great Lakes/St. Lawrence Basin Joint Venture disbanded, and former counties in Michigan and Ohio joined the Upper Mississippi River Joint Venture. The overall result of these actions is the Upper Mississippi River and Great Lakes Region Joint Venture we have today, approved (in geographical boundary and biological scope) in August 1997 (**Figure 2**).





**Upper Mississippi  
River & Great Lakes**  
Current Joint Venture Area  
(1998)

A migratory waterfowl population objective for the expanded Joint Venture was developed, based on the number of birds that would be expected to migrate through the Joint Venture if the Plan goal of 100 million birds in the fall flight were achieved. After a thorough literature review of migrational nutritional requirements, carrying capacity of various habitats, and harvest band returns, it was determined that the Joint Venture would need to provide a total of 773 million duck use-days, in all habitat types, during fall migration to accommodate Plan goals. Mid-latitude states in the Joint Venture then documented their existing manageable habitats, and determined additional habitat needs. These “migration objective” figures, in combination with revised “production objective” figures and a new “nongame objective”, establish the foundational building blocks for the development of the Joint Venture guidance outlined in this document.

State partners in the Joint Venture have outlined updated population and habitat objectives based on whether their state is of primary importance to waterfowl as a breeding area or as a migration area. A state may have objectives for both breeding and migrating waterfowl, but there is no overlap of counties within a particular state (for ease of habitat accomplishment tracking). Thus, the northern latitude counties in the Joint Venture are primarily breeding habitats, and the mid-latitudes are primarily migration habitats. This is not meant to indicate that northern latitudes do not provide migration habitat, however. All “waterfowl production” habitats within the Joint Venture are assumed to provide a minimum number of duck use-days to migrating waterfowl. (See **Appendix 1** for a complete discussion of duck use-days and the derivation of the Joint Venture migration habitat objective).

\* \* \* \* \*

Based on the new Joint Venture boundaries, the Upper Mississippi Joint Venture partners have protected, restored and enhanced 313,179 acres of wetlands and associated upland habitats since the original joint ventures were established. These Joint Venture accomplishments have contributed significantly to the original Plan’s U.S. habitat goals of 1.1 million additional acres of mallard breeding habitat, 686,000 additional acres of mallard migration and wintering habitat, and 10,000 additional acres of black duck breeding and migration habitat. Joint Venture partners will continue to track and report accomplishments annually toward the objectives outlined in this Joint Venture plan update, and to measure their progress toward achieving a significant portion of the Plan’s continental objectives (see **Appendix 4** for Annual Accomplishment Report form).



## GOALS AND OBJECTIVES

The goal of the Upper Mississippi River and Great Lakes Region Joint Venture is to increase populations of waterfowl and other wetland wildlife by protecting, restoring and enhancing wetland and associated upland habitats within the Joint Venture region.

**OBJECTIVE 1:** Conserve 9,118,884 acres of habitat capable of supporting an annual breeding duck population of 1,542,000, under average environmental conditions, by the year 2013.

**TABLE 1.**

*Breeding Duck Population Objective (# breeding birds, rounded)*

	<u>Average breeding population</u>	<u>Desired population</u>	<u>Increase (%)</u>
<b>Wisconsin</b>	474,000	560,000	86,000 (15%)
<b>Minnesota</b>	170,000	189,000	19,000 (11%)
<b>Indiana</b>	49,000	60,000	11,000 (22%)
<b>Michigan</b>	550,000	650,000	100,000 (18%)
<b>Iowa</b>	60,000	63,000	3,000 (5%)
<b>Illinois</b>	4,300	20,000	15,700 (365%)
<b>JV TOTAL:</b>	<b>1,307,300</b>	<b>1,542,000</b>	<b>234,700 (18%)</b>

**TABLE 2.***Production Habitat Objective (# acres wetlands and associated uplands)*

	<u>Focus Area</u>	<u>Pre-JV</u>	<u>Current</u>	<u>Desired Increase (%)</u>	<u>Desired Total</u>
<b>Wisconsin</b>	Southeast	439,000	600,000	224,000	824,000
	Northwest	224,000	250,000	41,000	291,000
	Winnebago	167,000	170,000	5,000	175,000
	Upper Miss. River	120,000	125,000	5,000	130,000
	Green Bay	9,000	12,000	2,000	14,000
	Wild Rice	20,000	22,000	3,000	25,000
	Marquette-Waupaca	104,000	107,000	3,000	110,000
	Central	167,000	170,000	5,000	175,000
	Forest Fringe	2,400	2,500	750	3,250
	<b>TOTAL:</b>	<b>1,252,400</b>	<b>1,458,500</b>	<b>288,750</b> <b>(20%)</b>	<b>1,747,250</b>
<b>Minnesota</b>	Headwaters	1,265,000	1,270,000		
	Central Hardwoods	566,000	570,000		
	Miss. Blufflands	406,000	407,000		
	Agassiz Lowlands	982,000	982,000		
	Border Lakes	468,000	468,000		
	Tamarack Lowlands	781,000	783,000		
	<b>TOTAL:</b>	<b>4,468,000</b>	<b>4,480,000</b>	<b>100,000</b> <b>(2%)</b>	<b>4,580,000</b>
<b>Indiana</b>	Northeast Indiana	183,600	184,682	18,500	203,182
	Kankakee R. Basin	285,000	288,152	28,800	316,952
	<b>TOTAL:</b>	<b>468,600</b>	<b>472,834</b>	<b>47,300</b> <b>(10%)</b>	<b>520,134</b>
<b>Michigan</b>	Rudyard Clay Plain	20,000	21,000	20,000	41,000
	Saginaw Lake Plain	80,000	82,000	20,000	102,000
	Huron Clay Plain	120,000	123,000	20,000	143,000
	Ionia Moraine	190,000	188,000	30,000	218,000
	Washtenaw Lake Plain and Moraine	190,000	186,000	10,000	196,000
	Arenac Lake Plain and Moraine	47,000	47,000	5,000	52,000
	Allegan Lake Plain	80,000	80,000	5,000	85,000
	Kalamazoo Interlobate	110,000	110,000	5,000	115,000

	<u>Focus Area</u>	<u>Pre-JV</u>	<u>Current</u>	<u>Desired Increase</u> (%)	<u>Desired Total</u>
	Northern High Moraines and Bedrock	320,000	320,000	0	320,000
	Northern Lake and Till Plain	220,000	220,000	0	220,000
	Northern High Sand Plain and Moraines	500,000	500,000	0	500,000
	<b>*TOTAL:</b>	<b>1,830,000</b>	<b>1,830,000</b>	<b>115,000</b> <b>(6%)</b>	<b>1,945,000</b>
<b>Iowa</b>	Mississippi River	205,000	211,000	2,110	213,110
	Miss. R. Tributaries	50,000	51,800	2,590	54,390
	<b>TOTAL:</b>	<b>255,000</b>	<b>262,800</b>	<b>4,700</b> <b>(2%)</b>	<b>267,500</b>
<b>Illinois</b>	Northeastern	4,522	12,687	46,313	59,000
	<b>TOTAL:</b>	<b>4,522</b>	<b>12,687</b>	<b>46,313</b> <b>(365%)</b>	<b>59,000</b>
<b>JOINT VENTURE TOTAL:</b>		<b>8,278,522</b>	<b>8,516,821</b>	<b>602,063</b> <b>(7%)</b>	<b>9,118,884</b>

\*Wetland acreage (net acres) continues to be lost in some Michigan focus areas due to intensive development associated with high human populations. In addition, grasslands are dynamic (but largely declining) due to reforestation, changing agricultural practices, plus enrollment in conservation programs. Therefore, estimates of waterfowl production habitat area are rough and used primarily as a baseline to measure Plan objective achievements.

\* \* \* \* \*

**OBJECTIVE 2:** Conserve 532,711 acres of habitat on migration focus areas capable of supporting 266 million duck use days during annual fall migration, under average environmental conditions, by the year 2013.

**TABLE 3.**

*Duck Use Day Objective (average fall flight x number of days in Joint Venture)*

Migration Focus Areas:	266,355,500	DUD's (desired total acres x 500 DUD's)
Production Focus Areas:	455,944,200	DUD's (desired total acres x 50 DUD's)
Unmanaged Private Lands:	50,700,300	DUD's (remainder)
<b>Total duck use days needed in all habitat types in the Joint Venture:</b>		<b>773,000,000</b>

[Includes the following assumptions: 1) 30-day average fall migration period; 2) manageable fall migration habitat provides 500 DUD's/acre; 3) breeding habitat provides 50 DUD's/acre; and 4) unmanaged private lands provide some DUD's, but are unreliable. See **Appendix 1** for a more detailed explanation of Joint Venture total].

**TABLE 4.**

*Migration Habitat Objective (acres of managed wetland habitat)*

	<u>Focus Area</u>	<u>Pre-JV</u>	<u>Current</u>	<u>Desired Increase (%)</u>	<u>Desired Total</u>
<b>Ohio</b>	Lake Erie Marshes	23,768	27,593	Rather than designate specific acreage objectives by focus area, OH will select projects within focus areas to take advantage of the best opportunities to meet their state objective.	131,300
	Scioto River Valley	2,261	2,636		
	Mosquito Creek	29,501	30,751		
	Killbuck Valley	6,409	7,114		
	Killdeer/Big Island	3,361	4,061		
	Rest of JV area	33,850	37,145		
	<b>Total:</b>	<b>99,150</b>	<b>109,300</b>	<b>22,000 (20%)</b>	
<b>Indiana</b>	Patoka NWR	240	2,419	15,000	17,419
	Gibson County	3,000	3,000	2,500	5,500
	Posey County	680	1,370	1,530	2,900
	Little Pigeon Creek	40	40	0	40
	Other New Madrid	5,405	5,405	0	5,405
	<b>Total:</b>	<b>9,365</b>	<b>12,234</b>	<b>19,030 (156%)</b>	<b>31,264</b>

	<u>Focus Area</u>	<u>Pre-JV</u>	<u>Current</u>	<u>Desired Increase (%)</u>	<u>Desired Total</u>
<b>Illinois</b>	Illinois River	31,553	32,772	11,143	43,915
	Mississippi/ Rock Rivers	41,742	47,330	16,092	63,422
	Southern Illinois	17,202	58,171	19,779	77,950
	<b>Total:</b>	<b>90,497</b>	<b>138,273</b>	<b>47,014</b> <b>(34%)</b>	<b>185,287</b>
<b>Iowa</b>	Missouri River	21,871	21,871	2,187	24,058
	<b>Total:</b>	<b>21,871</b>	<b>21,871</b>	<b>2,187</b> <b>(10%)</b>	<b>24,058</b>
<b>Missouri</b>	Southeast	21,345	27,135	10,749	37,884
	Northeast	12,171	16,042	18,473	34,515
	West Central	6,880	6,044	3,286	9,330
	North Central	13,685	20,825	7,624	28,449
	Northwest	4,020	5,140	11,265	16,405
	<b>Total:</b>	<b>61,101</b>	<b>75,186</b>	<b>51,397</b> <b>(68%)</b>	<b>126,583</b>
<b>Nebraska</b>	Missouri River	1,665	1,665	9,535	11,200
	<b>Total:</b>	<b>1,665</b>	<b>1,665</b>	<b>9,535</b> <b>(573%)</b>	<b>11,200</b>
<b>Kansas</b>	Missouri River	260	260	520	780
	Kansas River	2,398	2,398	6,796	9,194
	Marais des Cygnes	5,015	5,015	8,030	13,045
	<b>Total:</b>	<b>7,673</b>	<b>7,673</b>	<b>15,346</b> <b>(200%)</b>	<b>23,019</b>
<b>JV TOTAL:</b>		<b>291,322</b>	<b>366,202</b>	<b>166,509</b> <b>(45%)</b>	<b>532,711</b>

\*\*\*\*\*

**OBJECTIVE 3:** When consistent with Objectives 1 and 2, contribute to the protection and/or increase of habitats for wetland and associated upland wildlife species in the Joint Venture, with emphasis on declining non-waterfowl migratory birds.

In all of their habitat management activities, Joint Venture partners will strive to benefit multiple species of wildlife, in addition to waterfowl. Emphasis will be placed on providing benefits to species of migratory birds which utilize wetlands and associated grassland habitats, and which have been designated as species of concern. Refer to **Appendix 2**, the Partners In Flight “Priority Bird Species for the Midwest by Physiographic Area” lists, for priority nongame species and their associated habitats.

Because of the lack of good scientific data on the population size of these nongame species, there are no numerical objectives, nor a time horizon when this objective might be achieved. This will be an ongoing objective in all waterfowl habitat work, and progress will be measured through stabilized or improved population trends for each species, as measured by the Breeding Bird Survey (a nationwide monitoring program managed by the Biological Resources Division of the U.S. Geological Survey), and through studies that document population responses to site-specific habitat conservation activities.

## **STRATEGIES**

Strategies are actions needed to achieve the objectives of the Joint Venture. While individual states within the Joint Venture will determine and prioritize strategies by focus area, all will contribute to meeting the overall Joint Venture objectives, with the following emphases:

- A. Protecting existing wetlands and wetland/upland complexes from conversion and alteration using fee title acquisition and long-term (i.e. 10 years +) easements and agreements on private lands.
- B. Restoring altered wetlands and wetland/upland complexes through altering or eliminating drainage systems, providing for water level control, planting upland cover, and other management actions, and securing these habitat restorations through long-term easements and agreements on public and private lands.
- C. Enhancing degraded habitat on existing public lands and waters through management actions.
- D. Enhancing degraded habitat on private lands and waters through management actions and conservation education and outreach programs.
- E. Protecting existing wetlands through Federal and State regulatory programs, permits, and local legislation.

F. Improving the quality of existing wetlands by planting vegetation buffers, reducing contaminants, nutrients and sediments, and controlling rough fish and exotic plants and animals.

G. Protecting and enhancing riparian habitat.

## STATE PROPOSALS

### ILLINOIS

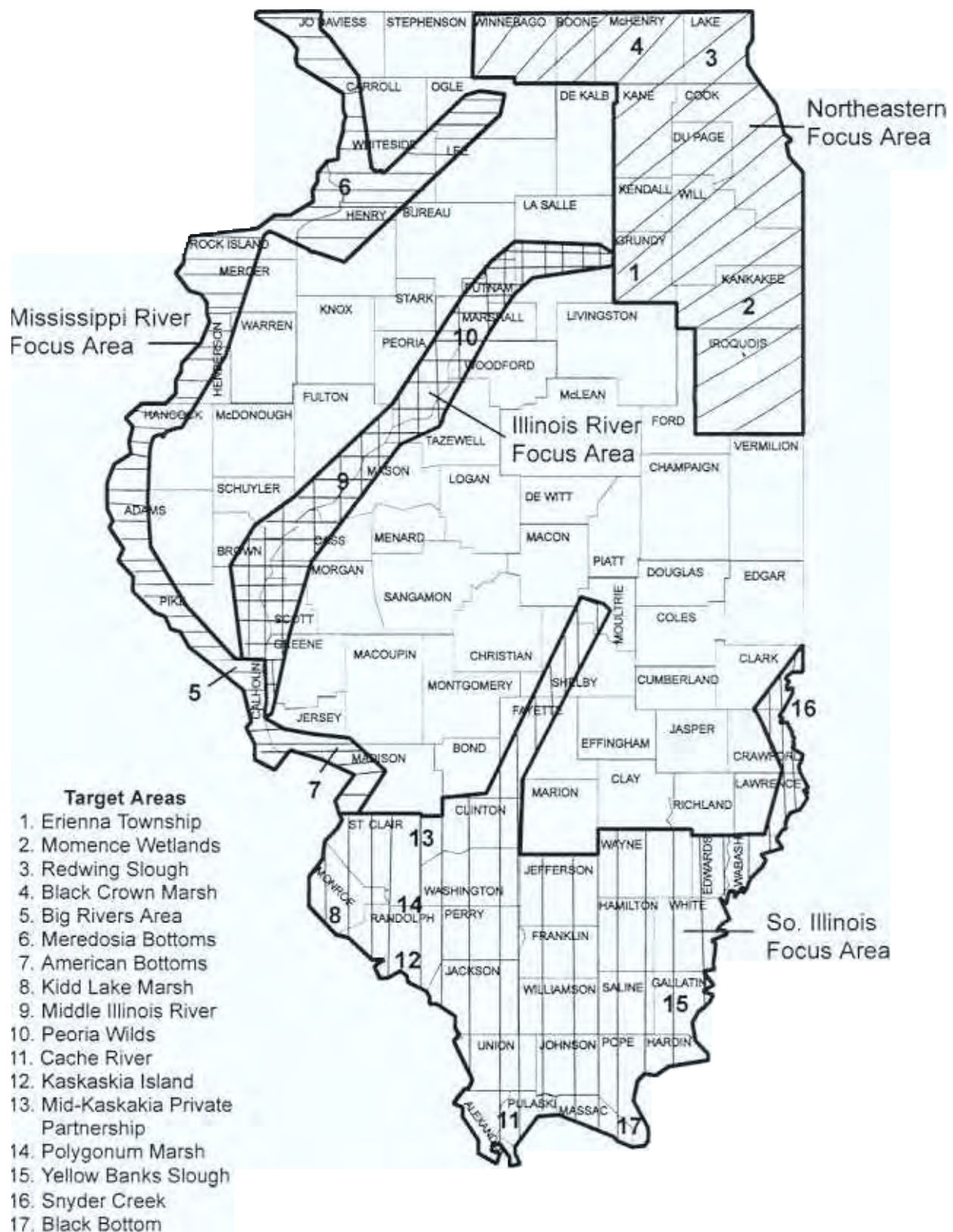
- Objective 1:** Protect and conserve 59,000 acres of breeding waterfowl habitat in the northeastern focus area of Illinois, improving nesting success of mallards and supporting an annual ground-nesting duck population of 20,000.
- Objective 2:** Conserve 185,287 acres of duck foraging habitat along mid-migrational corridors of Illinois.
- Objective 3:** Protect natural wetland communities from further degradation, and broaden site-specific waterfowl management practices and plans to include additional considerations for the habitat needs of non-waterfowl migratory birds.

### Strategies

Protect existing wetland communities through fee title acquisition, legislation, long-term easements or tax incentives.

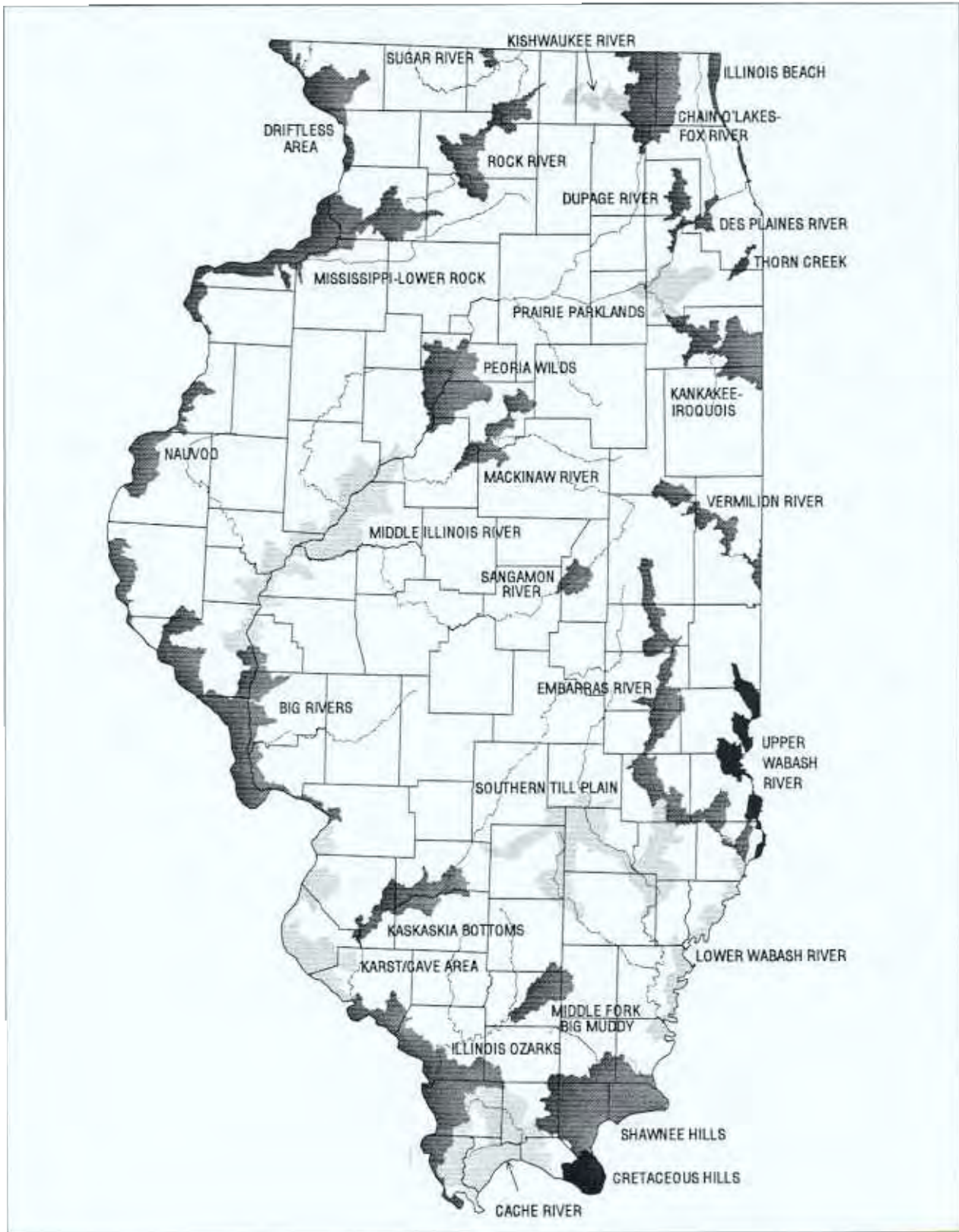
2. Enhance and expand wetland complexes through the use of levees and water management activities to increase the attractiveness of areas to migratory birds, where compatible with threatened and endangered species needs.
3. Protect, enhance and develop wetlands on private lands through technical assistance from State biologists in cooperation with the Natural Resource Conservation Service, the Farm Service Agency, the U.S. Fish and Wildlife Service, local Soil and Water Conservation Districts, local Ecosystem Partnerships and not-for-profit conservation organizations.
4. Protect, enhance or create mallard nesting and brood rearing habitat in northeastern Illinois to improve nesting success to the point where recruitment surpasses total annual mortality of breeding adults.

# STATE OF ILLINOIS JOINT VENTURE FOCUS AREAS





### Illinois Resource Rich Areas



Source: Inventory of Resource Rich Areas in Illinois, An Evaluation of Ecological Resources. 1996. Ill. Dept. of Natural Resources. 167 pp.

**Cost Estimate - \$9.6 million annually for next 15 years**

### **Focus Areas**

Much of the resource information described below was compiled from the Inventory of Resource Rich Areas in Illinois. This document was produced in 1996 through the Department of Natural Resources' Critical Trends Assessment Project and contains information on 30 designated "resource-rich" areas in Illinois (**Figure 3**). These 30 areas contain 45% of the state's bottom lands, 43% of the state's non-forested wetlands and 34% of the state's upland forests, while occupying less than 20% of the total area of the state. Most opportunities for wetland enhancement and protection/development of migration habitat for migratory waterfowl occur within these resource-rich areas. The Department of Natural Resources has recognized 22 local ecosystem partnerships for purposes of coordinating resource enhancement and protection projects within many of these resource-rich areas. While the best opportunities for habitat protection and enhancement are quantified below, many project opportunities not specifically mentioned may present themselves during the time period covered by the Joint Venture implementation plan. Protection of wetland areas within any of the 30 Resource-Rich areas in Illinois can be assumed to be of equal priority for the Department of Natural Resources, subject only to limited fiscal limitations.

Illinois counties within the Joint Venture have been organized into four general focus areas. Within each focus area are a list of target areas or sites that have the greatest potential for wetland enhancement and habitat preservation. The target sites, some of which correspond to the Resource Rich areas described above, are named and identified on the attached map (**Figure 4**). The number (in parentheses) following each named site in the narrative corresponds to the map number in Figure 3.

Northeastern Illinois Focus Area. (Production Objective) The twelve county area around Chicago contains about 150,000 acres of palustrine wetlands and another 32,000 acres of lakes - probably the highest concentration of remaining wetlands in the State. The wetlands exist mostly as scattered large lakes, sedge meadows and marshes, many of the small wetlands having been drained years ago to enhance agriculture. The marshes are fertile, and where a good interspersion of open water and emergents exists, waterfowl (predominantly mallards, wood ducks, blue-winged teal, and Canada geese) and other wildlife are abundant. Opportunities for wetland restoration would be great, except that landowners are generally resistant to eliminating land use options, especially since development for commercial/residential purposes can prove much more lucrative. In some cases, developers are willing to create and enhance wetlands in exchange for a permit to fill wetlands, but often prefer that some other entity take over management of the wetlands after construction.

Preservation and enhancement of these wetlands and associated upland nesting and brood rearing habitat in this region will lead to improved waterfowl production, especially of mallards. Breeding pair surveys conducted by Southern Illinois University at Carbondale (1992) estimated mallard breeding pair density in a 709,053-acre study area to be 3.38 pairs/sq. km of total land area, or approximately 1 pair for every 73 acres. Breeding waterfowl densities for all species was approximately 4.6 pairs/sq.km, which compared favorably with areas of secondary importance in the prairie pothole region. The palustrine wetland habitats within the study area supported an estimated 9,695 mallard pairs, about 1 pair for every 5.9 acres. However, there was a large disparity between the densities of breeding pairs and broods. A mallard productivity index (brood survey) indicated hen success may be as low as 7% in northeastern Illinois, well below the suggested 31% hen success rate needed to maintain a stable population. Brood survival and/or hen success may be low due to nest disturbance, habitat disturbance, predation and other forms of mortality linked directly to the high human population density in the region.

The recorded densities for all ducks of 4.6 prs/sq km on unmanaged lands in northeastern Illinois are indicative of the waterfowl production potential of the glacial wetlands in the region. Unfortunately, the area may currently be functioning as a population sink due to the low nest success and generally unprotected nesting habitat. To reverse this trend, existing wetland complexes and associated uplands in northeastern Illinois must be protected from future disturbance. Historical wetlands which have been drained or otherwise altered must also be restored. Nest densities and the overall nesting success of ducks may both be significantly improved through restoration and protection of wetlands in northeastern Illinois.

Given the high cost of property in this area, the greatest opportunity for wetlands protection and/or restoration in this area may be on existing public and corporate-owned lands through enrollment into long term conservation practices such as the USDA's Wetlands Reserve or Conservation Reserve Programs. The recently approved Conservation Reserve Enhancement Program along the Illinois River corridor offers many possibilities within this target area.

Non-waterfowl species, including endangered and threatened species, will benefit as well from the establishment or seasonal protection of upland nesting habitat in and around large wetland complexes. The following target sites represent some of the best opportunities for new habitat protection in northeastern Illinois. An increase of 46,313 acres of protected wetlands in northeastern Illinois has been targeted to help meet the waterfowl production objective.

- a. The 3,800-acre Erienna township waterfowl area in Grundy County (1) lies adjacent to the Illinois River, one of the major waterfowl flight corridors of the Mississippi Flyway. The National Wetland Inventory identified approximately 600 acres of existing wetlands and an additional 600 acres that could be restored

from land that is presently farmed flood plain. The remaining acreage includes uplands surrounding the water areas; this land could be managed for ground-nesting species, including waterfowl.

- b. The 1,900-acre Momence wetlands (2) area represents one of the last good examples of the Grand Kankakee Marsh that historically extended from Momence, Illinois, to South Bend, Indiana. The wetlands are part of the Kankakee River flood plain and extend seven miles through a corn belt region where few natural areas remain. The area is primarily forested wetland, but also contains scrub-shrub wetland, wet meadow, and marsh. Acquisition through fee title is essential to protect the area from housing developments and agriculture. The U.S. Fish and Wildlife Service has targeted the Grand Kankakee Marsh as one of its highest priorities for acquisition and inclusion into the National Wildlife Refuge System. The Service hopes to eventually acquire and protect up to 30,000 acres, spanning the Illinois and Indiana border. Migrating waterfowl and shorebirds utilize the area extensively. Sixty-one bird species have been observed in the area during the breeding season and the river supports and excellent sport fishery. Several rare fishes, one state endangered fish, and one state threatened bird are also known to use the area. The Kankakee River watershed involves 3.3 million acres. Great opportunities exist for partnering with neighboring Indiana, the U.S. Fish and Wildlife Service and a multitude of local entities interested in preserving the wetland qualities along the Kankakee River.
- c. The 1,900-acre Redwing Slough Area (3) in Lake County is one of the best marshlands of its type remaining in the state, as documented by the Illinois Natural Areas Inventory. Housing developments occurring at a phenomenal rate in this region threaten the future of this site. Numerous nesting and migrating waterfowl use the area and nine different threatened and endangered bird species have been observed on the site. Of these, six have been observed nesting. The State has acquired approximately 700 acres of this targeted area since establishment of the Joint Venture, and Ducks Unlimited is enhancing those acres. Further efforts are needed to secure these important areas from further development and loss of habitat.
- d. The 622 acre Black-Crown Marsh (4) lies immediately east of Moraine Hills State Park in McHenry County. This wetland basin is on the Illinois Natural Areas Inventory because of the presence of eight state-listed endangered or threatened water birds. This list includes the black tern, sandhill crane, yellow-headed blackbird, common moorhen, American bittern, great egret, pied-billed grebe, and black-crowned night heron. This marsh supports breeding populations of mallards, wood ducks and Canada geese and is host to numerous species of migrating waterfowl in the spring and fall. Development pressures in the vicinity of this marsh threaten its high quality. Acquisition and/or protection by other

means appears critical to the long term preservation of the unique qualities of this marsh.

2. Mississippi River Focus Area. The Mississippi River Valley contains over 340,000 acres of wetland habitat in the river miles bordering Illinois. (This acreage includes Missouri and Iowa). The Illinois portion of the valley hosts peak mallard populations in excess of 500,000 birds. The breeding wood duck population is estimated to be well in excess of 15,000. At the time of this writing, 47,330 acres were protected within this focus area through either state or Federal ownership. Four sites have been further enhanced through the Corps of Engineers' Environmental Management Program - Habitat Rehabilitation and Enhancement Projects (HREP). Work on these sites has totaled \$15 million over the past six years. Two other projects, estimated at \$4 million, are currently in the planning stage. Though total acreage protected through this program has not actually increased, the quality and value of these sites as foraging habitats for migrating waterfowl has been substantially improved, possibly beyond the estimated DUD value used in this report of 500 DUD per acre.

The targeted increase in protected acreage for mid-migrational waterfowl habitat in the Mississippi/Rock River focus area is 16,092 acres. It should also be recognized that protection of migrational habitat in this focus area will also secure important wood duck breeding habitat.

- a. Big Rivers Resource Rich Area (5) - generally located upstream from the confluence of the Illinois and Mississippi Rivers. The area contains over 147,000 of upland forest, nearly 50,000 acres of bottom land forests and 50,000 acres of water. State and Federal governments currently own about 48,000 acres, including portions of the Mark Twain National Wildlife Refuge and several dedicated waterfowl management areas along Mississippi River Pools 21-26. A 1994 North American Wetlands Conservation Act grant awarded \$150,000 to the Department of Natural Resources to restore and control over 740 acres of Mississippi River flood plain at the Red's Landing waterfowl area. Partners included Ducks Unlimited, Inc. and Migratory Waterfowl Hunters, Inc. The Nature Conservancy has also been very active in this region, working with private landowners to conserve wetlands. Migratory waterfowl habitat throughout this target area could be enhanced greatly through easements and water-control projects within the traditional flood plain areas of the Big Rivers region.
- b. Mississippi-Lower Rock River Resource Rich Area - located near the Quad cities in Northwestern Illinois, near the confluence of the Rock and Mississippi Rivers. The area contains Mississippi River Pools 16 and 17 and portions of the Upper Mississippi River and Mark Twain Fish and Wildlife Refuges. An important winter roosting site for bald eagles is located at the Elton E. Fawks Bald Eagle Refuge, just north of Moline. Many opportunities exist to protect additional wetland habitats in and around these facilities. Of great interest is the Meredosia ditch and associated Bottoms (6),

which generally comprises the east/west boundary between Rock Island and Whiteside counties (flowing between the Rock and Mississippi Rivers). The area contains approximately 10,000 acres of farmed bottom lands which would be likely candidates for permanent protection through WRP easements or similar programs.

- c. Karst/Cave Resource Rich area - located along the Mississippi River bottom lands from an area just north of St. Louis down through the limestone/dolomite outcrop areas of Randolph County. The area contains the second highest concentration of non-forested wetlands acres of the thirty designated resource rich areas identified in Illinois' Critical Trends analysis. (The area actually extends into the Southern Illinois focus area, but is described in its entirety here for convenience of the reader).

Within this region is an active project area known as the American Bottoms (7), which extends from Wood River down to Dupou and was historically one of the richest wetlands in Illinois. The US Army Corps of Engineers is underway with an initiative to restore many of the wetland areas for storm water retention, protected with siltation basins. Public lands around these wetlands are also being restored. In addition, a Natural Resources Conservation Service EWP Flood Easement Project is underway to develop a seven mile corridor of wetlands for flood conveyance, storage, and relief. The project may include up to 5000 acres of easement protected wetlands. Many of these sites will need additional project support for engineering and other management functions for full restoration. Both areas exist in near-urban environments making partnership opportunities ideal for both public protection and private enhancement projects. The American Bottoms is also known as an important area for several listed threatened and Endangered wetland bird species and contains several rookery sites for herons and other wading birds.

Another target area within the Karst/Cave complex is Kidd Lake Marsh (8), which was once a shallow backwater lake of the River that has been partially drained and is currently farmed. The State owns only about 440 acres of a targeted 1400. The large lake bed and surrounding upland areas could be developed into a significant waterfowl rest and forage area, as its strategic location already great numbers of waterfowl and shorebirds. Acquisition and/or easements are necessary to properly manage this site to its greatest potential.

- 3 Illinois River Focus Area. The Illinois River and associated wetlands provide some of the most significant areas of wood duck production and mid-migration mallard habitat in the Mississippi Flyway. Peak mallard populations have been known to exceed one million ducks. The breeding wood duck population in the valley is estimated at over 20,000.

The total wetlands in the Illinois River Valley prior to settlement was approximately 350,000 acres. Less than 170,000 acres remain, primarily due to drainage for agricultural purposes. State and Federal management areas protect approximately 16,500 acres of

palustrine-type wetlands. Another 16,000+ acres are estimated to be protected by private duck hunting clubs, many of which have the ability to manage water levels and provide refuge areas for waterfowl feeding and resting. EMP-HREP funding over the past six years within this focus area has exceeded \$29 million. Funds are approved and construction is scheduled on two other sites, estimated at \$6 million, and planning is underway on another \$10 million of work, all of which will greatly enhance the quality of foraging habitat for migrating waterfowl within the Illinois River Valley.

A combination of new acquisitions and further enhancement projects within the Illinois River valley could be expected to substantially increase foraging areas and duck-use days during fall and spring migrations and significantly enhance wood duck production. The state has identified a target increase of 11,143 new acres within the Illinois River focus area.

- a. Middle Illinois River sites (9) - The middle Illinois River valley, stretching from an area just south of Peoria to Florence, was historically one of the most important areas for migrating waterfowl in all of North America. Although many of the most significant areas have been greatly altered over the years by drainage and cropping of wetlands within the flood plain, there remains an abundance of food and shallow bottom land lakes, sloughs, marshes and ponds. The area contains nearly 55,000 acres of public lands, most of which are dedicated to waterfowl management. There are nine different state holdings and three National Wildlife Refuges - Emiquon, Chatauqua and Meredosia (collectively referred to as the Illinois River National Wildlife and Fish Refuges). The acquisition goal for the Emiquon Refuge is 11,000, of which only 1,250 have been acquired at the time of this writing. This expansive area is the location of the former Thompson Lake/Flag Lake complex, a large backwater area that was drained in 1923 and is currently being farmed. Acquisition continues as funds are available. The Emiquon Refuge project has been supported by NAWCA grants in the past and The Nature Conservancy has applied for NAWCA funds to assist in additional acquisitions for eventual transfer to the Meredosia Refuge. Some of the major state waterfowl management sites include the Rice Lake/Banner Marsh complex, Anderson Lake Conservation Area and Sanganois Fish and Wildlife Area. All have the potential for additional migration habitat enhancement.
- b. Peoria Wilds Resource Rich Area (10) - located along the Illinois River flood plain north of Peoria, this area contains over 9% open water and numerous backwater areas and sloughs along the River that are important for migrating waterfowl. State and Federal areas include Marshall County and Woodford County State Fish and Wildlife areas, and portions of the Chatauqua National Wildlife Refuge. These three areas, especially Marshall County SFW, could all be improved by the construction of additional water-control facilities to improve duck foraging habitat.

4. **Southern Illinois Focus Area.** The southern 24 counties of Illinois previously within the boundaries of the Lower Mississippi Valley Joint Venture (LMV) and the New Madrid Wetlands Project. Effective August 1997, these 24 counties were transferred to the Upper Mississippi River Joint Venture and are thus incorporated as part of this plan. Six additional counties located along flood plain areas of the Wabash and Kaskaskia Rivers were also added to the Upper Mississippi Joint Venture and will become part of the overall southern Illinois focus area.

The targeted increase in mid-migrational waterfowl habitat protection for the southern Illinois Focus area is 19,779.

- a. **Cache River Resource Rich area (11)** - The Cache River flows through the extreme southwestern tip of Illinois and contains many significant wetland complexes and unique natural areas. The area contains over 46,000 acres of public lands, including two state conservation areas, three state parks, one state forest, the Cypress Creek National Wildlife Refuge and nearly 20,000 acres under U.S. Forest Service ownership. The area also contains 63 state-designated Natural Areas over 18,000 acres. The Cache River wetland ecosystem contains an impressive blend of cypress-tupelo swamps and bottom land hardwood forests, interspersed with rocky bluffs, limestone glades and successional fields. Over 250 species of migratory waterfowl, wading birds and neotropical migrants songbirds occur within the region. The area has been designated as a wetland of international importance by the RAMSAR Convention

In 1993, the Migratory Bird Conservation Commission approved a grant under the North American Wetlands Conservation Act to acquire 2,172 acres of existing wetlands and associated uplands. Targets of opportunity exist for acquisitions of over 25,000 acres of additional bottom land timber, wetlands and small impoundments. Active partners include the Illinois Department of Natural Resources, the U.S. Fish and Wildlife Service, The U.S. Forest Service, the Natural Resource Conservation Service, The Nature Conservancy, Ducks Unlimited, the American Land Conservancy, and a variety of other NGO conservation organizations.

- b. **Kaskaskia River Corridor** - The Kaskaskia River corridor contains the greatest percentage of bottom land hardwoods than any other resource rich complex in Illinois. The area stretches from Kaskaskia Island in southwestern Randolph County at the river's confluence with the Mississippi River, northeasterly through Fayette and Moultrie Counties, which contain large flood control reservoirs managed by the U.S. Army Corps of Engineers. Major waterfowl management areas, controlled by the Illinois Department of Natural Resources, are located at the headwaters of these reservoirs (Carlyle Lake and Lake Shelbyville) and at Baldwin Lake in Randolph and Monroe counties, a-2000 acre power plant cooling lake.



Land acquisition and protection opportunities exist throughout the corridor. Portions of the 9,000- acre Kaskaskia Island (12), formed in the late 1800's when the Mississippi River changed course, could be developed to attract large numbers of waterfowl and shorebirds due to its strategic location in the middle of the Mississippi River. The Island was predominantly under private ownership at the time of this writing, but several owners have offered various properties for sale in the past.

The middle portion of the River (13), which remains relatively unaltered between Fayetteville and Carlyle, has been the target of a massive private land partnership effort to protect the large contiguous bottom land forests along this stretch of the River. This 30 mile segment contains over 30,000 acres of bottom land timber, with numerous small oxbows and ponds. These wetlands are very productive for wood ducks and host significant populations of various neotropical migrant birds. Cropped bottom lands within the corridor have been targeted for decades as potential sites for wetland restoration projects. Partnering agencies include local governments, private conservation groups and the local soil and water conservation groups. A regional wetland restoration and protection plan was developed in 1995.

South of Fayetteville, the Kaskaskia River Corridor is designated as a State Fish and Wildlife area, covering about 18,000 acres on both sides of the River along a 35 mile stretch to the confluence of the Mississippi River. Baldwin Lake, the Doza Creek Waterfowl Management Area and Polygonum Marsh (Big Lake) are all within the boundaries of the Kaskaskia River SFWA. Polygonum Marsh (14) remains partly owned by private parties and remains a target of opportunity for public acquisition or other mechanism for permanent protection.

- c. **Wabash River Corridor** - The Wabash River forms Illinois' southeastern boundary starting at Clark County and flowing southward until its confluence with the Ohio River in Gallatin County. The Wabash River remains relatively unaltered and contains a wide flood plain that is now mostly cropped. Bottom land and upland timber comprise about 20 % of the land cover along the corridor. The Upper Wabash exhibits the transition zone between beech-maple forests of the eastern U.S. and the oak-hickory forests of the west. Areas along the lower Wabash contain wet prairie, sloughs, oxbows and marshes. Over 6,800 acres along the River have been designated as state natural areas. Opportunities exist to restore traditional flood plain areas now in cropland to seasonal wetlands and moist soil conditions.

The Illinois Department of Natural Resources has targeted many areas for wetland acquisitions or restoration along the Wabash River. One area of prominence lies between New Haven and Shawneetown in Gallatin County, near the River's

confluences with the Little Wabash and Ohio rivers. Termed Yellow Banks Slough (15), the area contains over 21,000 acres of bottom land timber, open sloughs and cropped wetlands which could be restored. The Little Wabash River corridor, upstream of the Yellow Banks Slough, also contains some 13,000 acres of seasonal wetlands and farmed bottom lands. Further upstream in Clark County, Snyder Creek (16) near West Union provides significant wetlands resources which deserve additional protection. Joint projects along the Wabash River corridor are possible with the State of Indiana

- d. Black Bottom (17) - located at the southeastern tip of Illinois, spanning Pope and Massac counties on the north side of the Ohio River. This area contains low, gravel hills with continual groundwater seeps, making the area rich in a diversity of unique flora, including cypress swamps, flood plain forests and rare species of orchids, mosses and ferns. The area is predominantly in private ownership. The area is a unique wetland complex that should be preserved for its integrity and benefit to all types of wetland bird species.

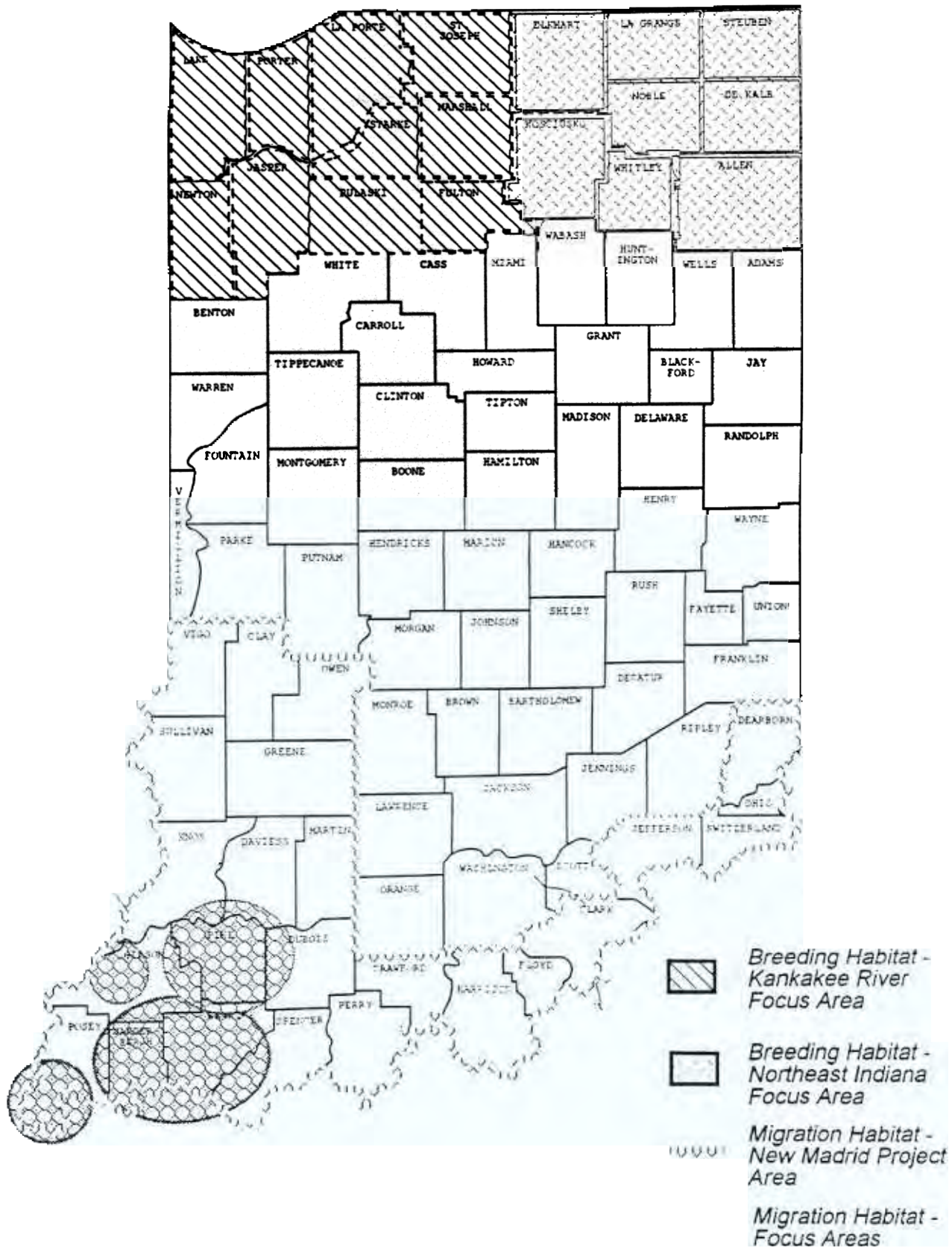
## Summary

The State of Illinois has a multitude of opportunities for further preservation and enhancement of waterfowl habitat throughout the state. Habitat preservation in the Northeastern portion of the state will help protect ground nesting waterfowl species such as mallard and blue-winged teal as well as non-waterfowl wetland species. Mid-migrational habitat can be substantially improved along the many major flyway corridors in the state through land acquisition, installation of water control structures, dredging, sediment control and through implementation of long-term conservation practices on private lands such as those offered through USDA Wetland Reserve and Conservation Reserve Programs. The combined production and mid-migration habitat goals in Illinois call for the acquisition and/or protection of 93,327 new acres. While this plan offers several target areas which may be considered high in priority, the focus area boundaries are broadly defined in an effort to capitalize on all future opportunities and partnerships which present themselves in support of this plan.

## References:

Gates, Robert J. 1992. Ecology of Waterfowl in Northeastern Illinois. W-102-R Final Report. Cooperative Wildlife Research Laboratory, Southern Illinois University, Carbondale. 186 p

# Indiana Focus Areas



## **INDIANA**

**Objective 1:** Conserve 520,134 acres of breeding waterfowl habitat, supporting an annual duck breeding population of 60,000.

**Objective 2:** Conserve 31,264 acres of migratory waterfowl habitat.

### **Strategies**

Develop cooperative efforts with state, Federal and private entities to accomplish the following:

1. Protect existing wetland-upland complexes through the use of fee title acquisition and perpetual easements.
2. Restore or develop new wetland-upland complexes on public and private lands to provide additional habitat that will be attractive to waterfowl and other wildlife species.
3. Enhance and manage habitat on public and private lands and waters, with special emphasis on soil and watershed protection.

**Cost Estimate:** \$ 6.63 million annually through the year 2012.

### **Focus Areas (Figure 5)**

#### **1 Production Areas**

- a. Northeast Indiana - This portion of the state is largely a morainal area characterized by thousands of lakes, remnants from the Wisconsin glaciation period. This area represents a large portion of available as well as potential breeding waterfowl habitat in the state. Other wildlife species of special interest have been documented in this area, including the state threatened spotted turtle and eastern massassauga rattlesnake and state species of special concern including blanding's turtle and blue-spotted salamander. In addition, several species of Federal and state endangered mollusks as well as rare butterfly and dragonfly species are present and more than 30 nesting sites of eastern sandhill crane have been recorded since the 1980's. Unfortunately, northeast Indiana also is characterized by several thousand acres of drained wetlands.

There is a large potential for wetland restoration and enhancement in this area.

Habitat objective: To permanently protect, enhance, restore and/or create 18,500 acres of wetland and associated uplands on public and private lands by the year 2012.

- b. Kankakee River Basin - This area of northwest Indiana includes the southeast tip of Lake Michigan and once held the 500,000 acre grand Kankakee marsh, one of the largest wetlands in the continental United States. Despite the amount of drainage and disturbance, this area provides habitat for breeding and migrating waterfowl as well as numerous other wetland-associated wildlife species. Five federally threatened or endangered species, 10 Federal candidate species and 220 state threatened or endangered species are known to occur within the area of the Kankakee River drainage basin. A state owned area in Jasper and Pulaski counties provides refuge to large concentrations of eastern sandhill crane during fall and spring migrations and in addition cranes nest at Jasper/Pulaski and Willow Slough Fish and Wildlife Areas.

Habitat objective: To permanently protect, enhance, restore and/or create 28,800 acres of wetland and associated uplands on public and private lands by the year 2012.

## 2. Migration Habitat

- a. Patoka NWR - The Patoka River flows 162 miles through 4 counties in southwest Indiana. Bottomland forested wetlands are the primary habitat type, but scrub-shrub and palustrine emergent wetlands are also found here. All are surrounded primarily by upland hardwood forest. This project area provides some of the most productive wood duck nesting and brood-rearing habitat in the state. In addition, the area is used by waterfowl during fall and spring migration. Species of special interest (Federally or state endangered or threatened) known to use the project area include bald eagle, Indiana bat, Northern copperbelly watersnake, the endangered fat pocketbook mollusk, Cerulean warbler, red-shouldered hawk, yellow-crowned night heron and the Indiana crayfish. River otters were recently reintroduced into the Patoka River watershed.

Habitat objective: To permanently protect, restore and enhance 15,000 acres of bottomland forested wetland, scrub-shrub wetland and emergent wetland along a 30 mile corridor of the Patoka River by the year 2012.

- b. Gibson County - The portion of Gibson county of particular interest is Gibson Lake and the adjacent wetland areas, approximately 3 miles south of the confluence of the White and Wabash Rivers. This portion may contain the largest contiguous bottomland hardwood habitats found in this general area.

This 3,000 acre cooling lake was constructed during the late 1960's for use by Cinergy Corporation's Gibson electrical generating station. There are 160 acres of palustrine emergent and scrub-shrub wetlands adjacent to the lake that are intensively managed for wetland wildlife.

An additional 500 wetland acres, largely the result of earth borrowing activities during lake construction, are managed by Cinergy. The lake and surrounding areas are used heavily during fall and spring migration by waterfowl, and by a variety of shorebirds and wading birds during periods of natural drawdown. In addition, the Federally endangered interior least tern utilizes these areas as staging, feeding and nesting habitat; and migrant bald eagle and peregrine Falcons are noted. During 1997, 33 nesting pairs fledged 35 chicks on or around Gibson lake. This is the only known nesting colony of interior least terns in the Ohio River drainage area.

Habitat objective: To acquire, enhance, protect and restore 2,500 acres of bottomland forested wetlands, palustrine emergent wetlands, moist soil areas and least tern habitat by the year 2012.

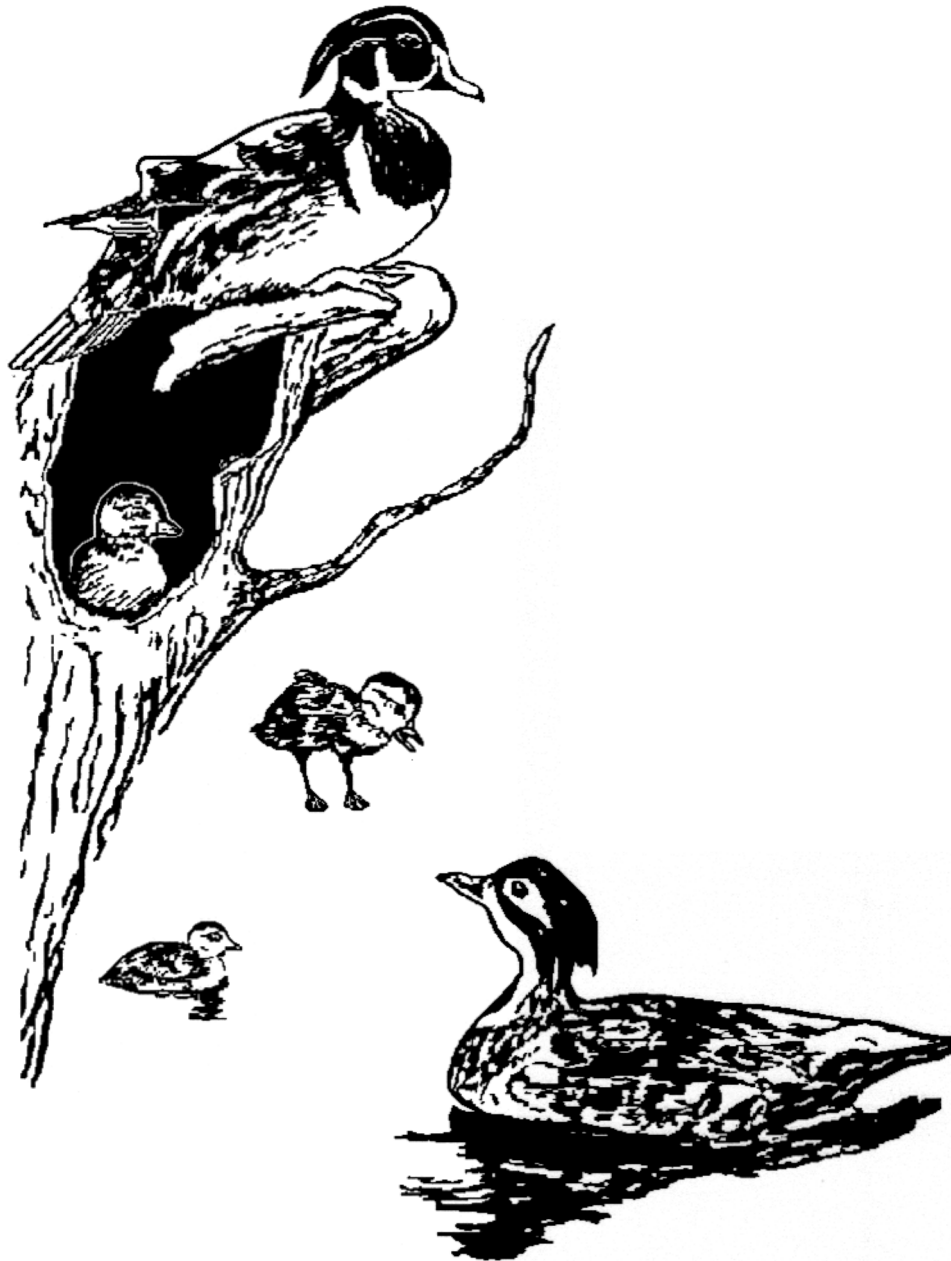
- c. Posey County - This county in the southwestern tip of Indiana is characterized by oxbow lakes, bottomland hardwood forested wetlands and broad lowlands. Due to its proximity to the Ohio River, large areas are regularly inundated during spring and late winter. This area provides nesting habitat for wood ducks and is used heavily during spring and fall by migrating waterfowl. Hovey Lake, a 1,400 acre state-owned lake in southern Posey county provides important staging habitat for the Mississippi Valley and Southern James Bay populations of Canada geese, bald eagles winter and nest on this property also. The floodplains of this area provide some of the most productive shorebird habitat in Indiana. In addition, bottomland hardwood forested wetland tracts provide important breeding habitat for several neotropical migrant species, including Cerulean warbler.

Habitat objective: To acquire, enhance, protect and restore an additional 1,530 acres of bottomland forested wetlands, palustrine emergent wetlands, scrub-shrub wetlands and riverine habitat by the year 2012.

- d. Little Pigeon Creek - This creek forms the border between a major portion of Warrick and Spencer counties in southwest Indiana, and eventually drains into the Ohio River.

Habitat along this waterway, approximately 30 miles in length, is typically bottomland hardwood wetlands with some scrub-shrub and emergent wetlands present. Surrounding habitat includes remnant sloughs and oxbows, upland hardwood forest and agricultural lands. This area provides valuable habitat for

nesting wood ducks, and migration and staging habitat for migrating waterfowl and other wildlife species.







## **IOWA**

**Objective 1:** Conserve 267,500 acres of breeding waterfowl habitat, supporting an annual breeding duck population of 63,000.

**Objective 2:** Conserve 24,000 acres of migratory waterfowl habitat.

### **Strategies**

#### **1 Breeding Habitat**

- a.** Protect existing wetland-upland complexes and riverine floodplain wetlands through fee title acquisition, easements, tax incentives, and legislation.
- b.** Enhance wetland-upland habitat for waterfowl and other wetland associated wildlife (including a number of state and Federally listed endangered and threatened species) on public land through the construction of dikes, use of ditch plugs, wetland renovation, level land ditching, installation of water control structures, creating potholes, manipulating upland nesting cover, constructing nesting structures and other beneficial management techniques.

Restore wetlands on private land by providing materials, equipment, labor and/or technical assistance to cooperating landowners.

- d.** Protect water quality by creating wetlands along with utilizing good watershed management practices to reduce ground and surface water contaminants.

#### **2. Migrational Habitat**

- a.** Acquire new and add to existing wetland areas to provide protected waterfowl mid-migrational habitat of adequate size to provide safe resting areas for waterfowl and other wetland associated bird species, including a number of state and Federally listed endangered and threatened species.
- b.** Enhance wetland habitats on public and private lands to provide adequate mid-migrational habitat during spring and fall migrational periods.

#### **Cost Estimate:**

- 1. Breeding Habitat - \$ 400,000 annually through the year 2012.**
- 2. Migrational Habitat - \$200,000 annually through the year 2012.**

## **Focus Areas (Figure 6)**

### **Breeding Habitat**

A total of 34 counties in Eastern Iowa are included in the breeding habitat objective and are separated into two focus areas. Wetlands in this area are primarily associated with riverine systems but also include other natural and constructed wetlands. These provide extensive breeding habitat for wood ducks and other waterfowl such as mallards, blue-winged teal, hooded mergansers and Canada geese. They also provide important breeding habitat for wetland associated non-waterfowl species such as herons, egrets, bald eagles, bitterns, rails and other species. A breeding population of sandhill cranes has been building in this area since the early 1990's.

#### **a. Mississippi River Focus Area**

The Mississippi River flows along 316 miles of Iowa's eastern border. Lock and dam structures constructed by the U.S. Army Corps of Engineers have resulted in the creation of over 186,000 surface acres of water. Most of this habitat is owned and managed by the Corps of Engineers and the U.S. Fish and Wildlife Service. The Iowa Department of Natural Resources and various county conservation boards also own and manage considerable public lands within this area. This focus area consists of the Mississippi River channel and all contiguous natural and constructed wetlands.

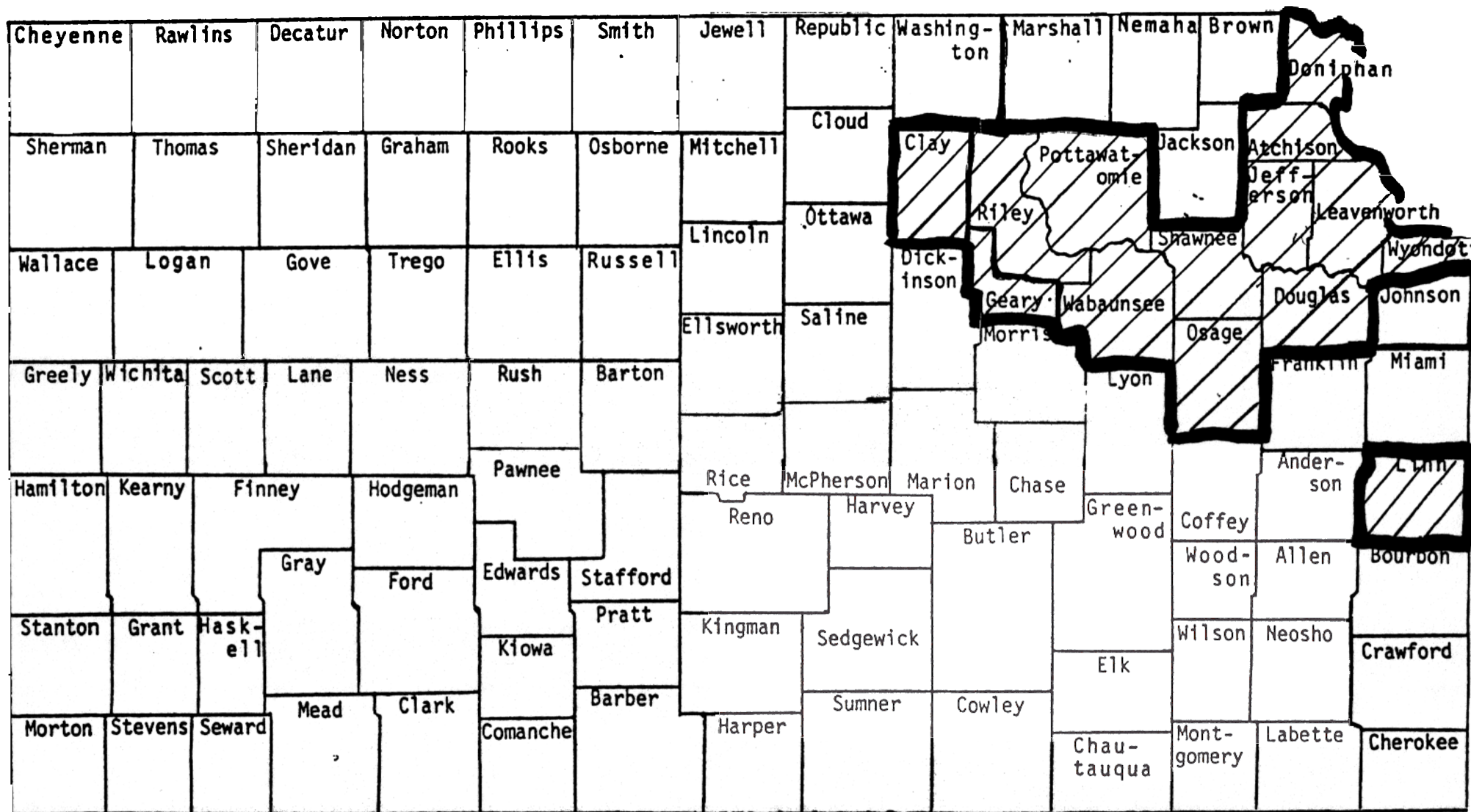
#### **b. Mississippi River Tributaries Focus Area**

Critical wetland habitat is also provided by old river channels and overflow areas found along inland rivers and stream floodplains. Over 3,000 miles of inland rivers and streams are located in this focus area. This area provides the greatest potential for acquisition and wetland development on both public and private lands. The Department of Natural Resources as well as 34 county conservation boards own public lands in this area. This focus area consists of all lands and waters within the 34 eastern Iowa counties excluding the Mississippi River channel and those wetlands adjacent to the Mississippi River.

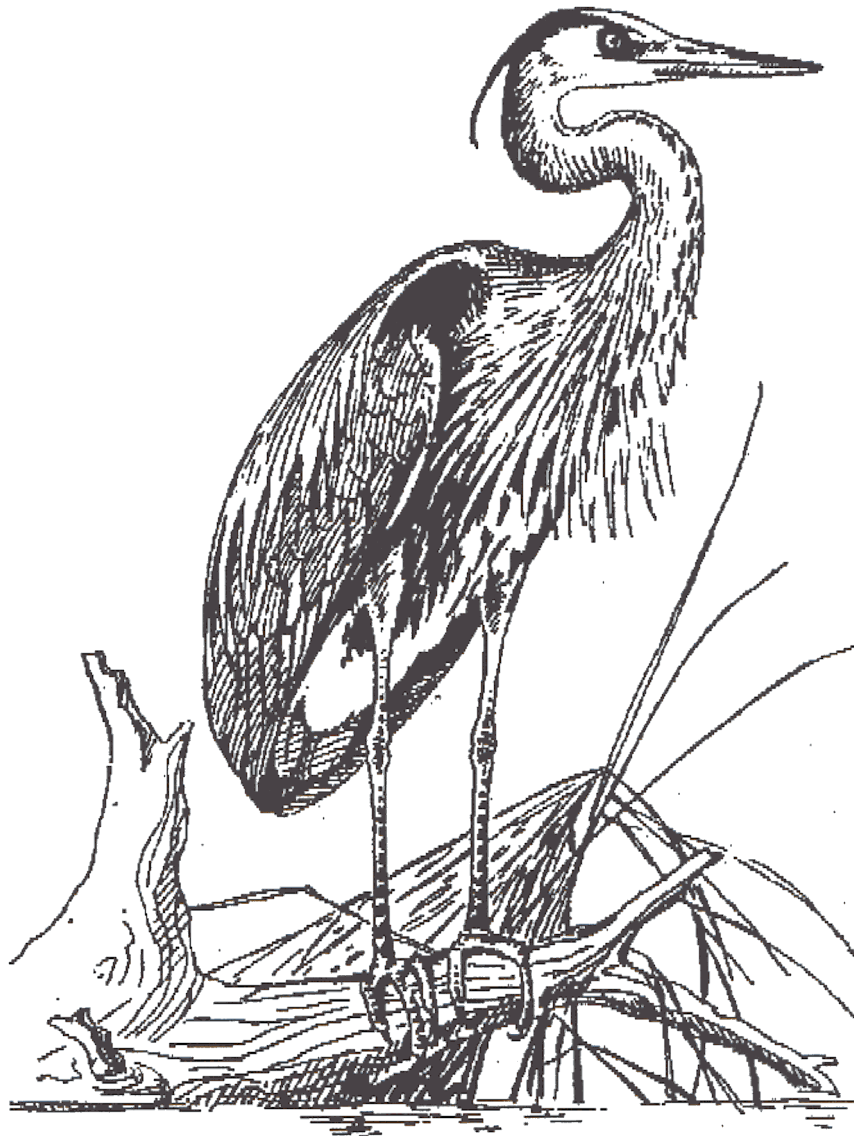
### **2. Migrational Habitat**

The migrational habitat focus area consists of the six western Iowa counties bordering the Missouri River. The Missouri River flows along 181 miles of Iowa's border. Because of the fast river current, high siltation and little emergent vegetation, the Missouri River channel is only of minor importance for migrational habitat. The river has formed a wide floodplain, however, and contains an extensive system of oxbows

# KANSAS JOINT VENTURE FOCUS AREAS BY COUNTY



and back water areas. A total of 21,871 acres of public lands are associated with the Missouri River and some of the highest concentration of migrating waterfowl in Iowa use these areas during the spring and fall migration.



## **KANSAS**

**Objective 1 Conserve 23,019 acres of waterfowl migration habitat.**

### **Habitat Objectives:**

Since our breeding population numbers are relatively small in Kansas, the objectives are primarily focused on migratory habitat. Plans have been made to try to increase breeding populations, which will focus mostly on Canada geese, but will also provide for duck nesting. Objectives include increasing wood duck nest boxes by 300, and increasing nesting islands and nesting habitat by 2000 acres.

- 2. There is currently about 7,700 acres of waterfowl habitat in the Joint Venture. The objective is to increase the habitat by threefold, for a total of 23,019 acres. This should parallel our plans to increase the current migratory duck use days by three.**
- 3. In our attempts to reach a more holistic management concept, all non-waterfowl species located in the area will be considered as the individual management plans are developed. Many species will benefit from seasonal protected uplands in and around the wetland areas. The wetlands themselves will be manipulated in some areas specifically to provide benefits to many migratory species other than waterfowl, with the primary focus placed on Federal as well as state threatened and endangered species.**

### **Strategies**

Kansas plans to work with all partners in wetlands to accomplish this task. Just recently a Wetlands and Riparian Alliance has been formed by major agencies such as the Natural Resource Conservation District, U.S. Fish and Wildlife Service, U.S. Forest Service, the Army Corps of Engineers, State Conservation Commission, Kansas Biological Survey, Kansas Department of Health and Environment, Kansas Water Office, Pheasants Forever, Kansas Forest Service, Western Resources Inc., U.S. Environmental Protection Agency (Region 7), and Kansas Department of Wildlife and Parks. The efforts of the Alliance will be focused on developing and maintaining wetlands across the state. Several of the priority areas are located in the Joint Venture area.

The Department plans to continue working with Ducks Unlimited through the MARSH Program, and the COE through the 1135 Program, to continue developing and enhancing wetland acres each year. In 1998, three projects totaling 200 acres were approved and are currently under construction utilizing MARSH funding. A feasibility study has been completed to develop a 2,340-acre wetland complex on the Milford Wildlife Area utilizing

a 75% cost share from the COE. This \$5 million project is scheduled to go into construction in 1999.

The primary strategy for the Joint Venture area is to increase our working relationships with other entities to continue to partner with them on all levels of wetland management. With objectives of this magnitude, it will take the efforts of all the different agencies and organizations to make this plan a reality.

**Cost Estimate:**

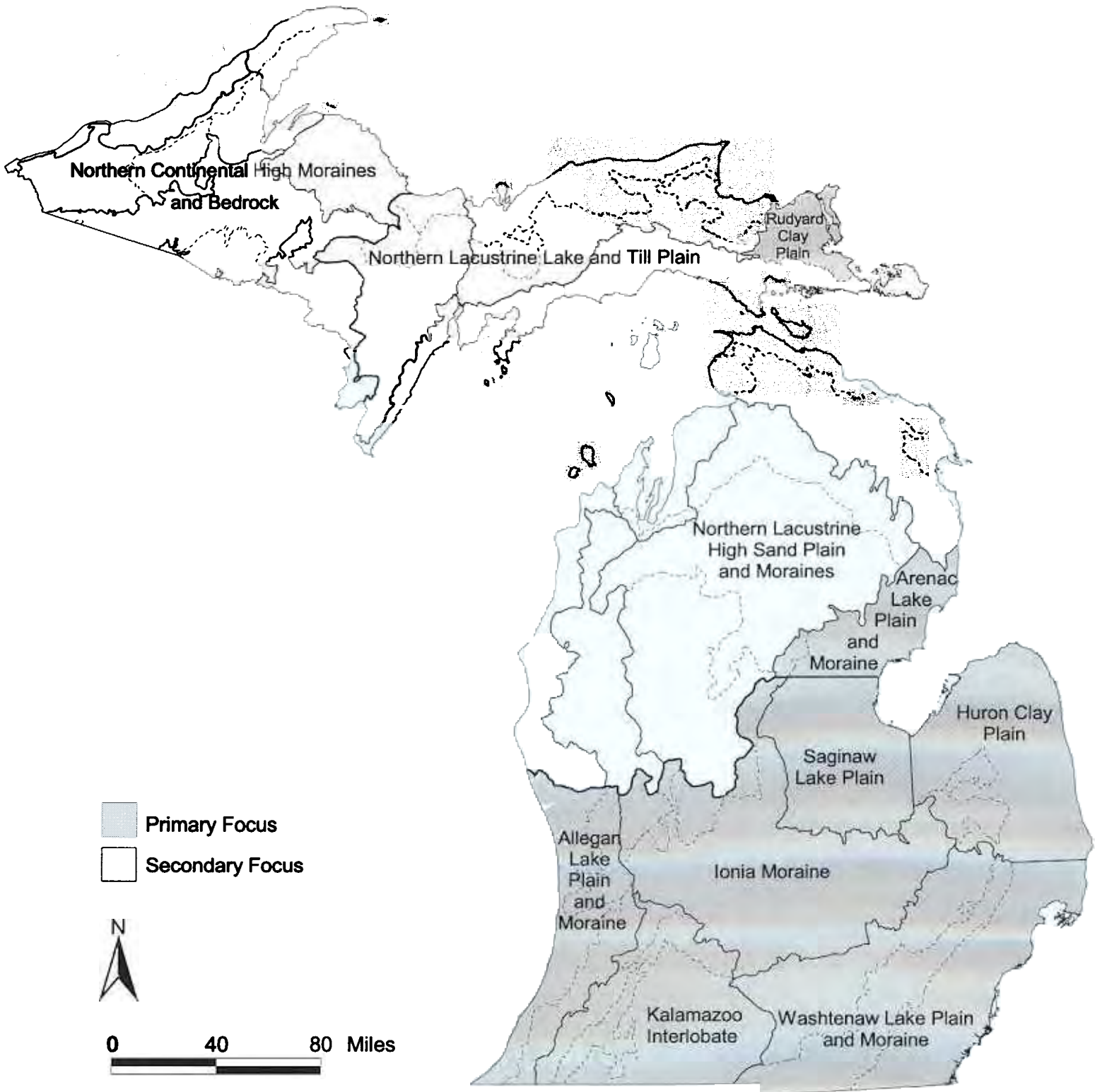
Based on wetland enhancement and restoration projects that have been completed over the past few years, the average cost to develop an acre of wetland ranges from \$1,000 to \$2,000. This average varies depending on location, ease of development and whether land must be purchased or not. Assuming a cost of \$1,500 per acre, the cost of developing our objective of an additional 15,346 acres will be around \$23,019,000. This would be an annual cost of \$1,534,600 when allocated out over the next 15 years.

**Focus Areas (Figure 7)**

	<u>Current (acres)</u>	<u>Desired Increase</u>	<u>Desired Total</u>
Missouri River	260	520	780
Kansas River Drainage	2,398	6,796	9,194
Marais Des Cygnes River Drainage	5,015	8,030	13,045
<b>TOTAL:</b>	<b>7,673</b>	<b>15,346</b>	<b>23,019</b>

Due to Kansas only recently being inducted in the Upper Mississippi River and Great Lakes Joint Venture, all counties included in the Joint Venture area are considered focus areas (see map).

FIGURE 8



North American Waterfowl Management Plan Focus Areas Based On Regional Landscape Ecosystems of Michigan



## **MICHIGAN**

**Objective:** Conserve 1,945,000 acres of waterfowl breeding habitat, supporting an annual duck breeding population of 650,000 by 2013, while ensuring healthy, sustainable populations of other wetland-wildlife species.

### **Strategies**

Restore and/or construct over 30,000 wetland acres contiguous with grasslands lacking wetlands suitable for waterfowl production on private lands, existing public lands, and newly acquired public lands.

Establish over 60,000 grassland acres contiguous with wetlands suitable for waterfowl production on private lands, existing public lands, and newly acquired public lands.

Protect an additional 100,000 acres of wetland and associated upland valuable for waterfowl production by preventing naturally functioning wetlands and associated uplands from being negatively altered using current and new legislation, fee title acquisition, and long-term ( $\geq 10$ -year) easements. In addition, altered wetlands and uplands will be restored and enhanced.

Identify and exploit new management opportunities associated with human development, including roadside grasslands, county drains and their riparian zones, capped landfills, retention/detention basins, and wetland-loss mitigation projects. Opportunities also exist working with utility companies (i.e., power lines, pipelines, and hydro impoundments); local, state, and national parks; and county planners.

Develop conservation information/education initiatives to improve the public's knowledge of wetland values and functions, how to maintain these values and functions, wetland wildlife, wetland management, and the control of aggressive exotic plants. Target audiences will include agricultural landowners, industrial landowners, drain commissioners, and landowners interested in wildlife management.

Expand the coalition brought together by the NAWMP to increase the base of viable partners and enhance effectiveness within given focus areas.

**Cost Estimate:** \$5-10 million annually for the next 15 years.



The whole state of Michigan is within the Upper Mississippi River and Great Lakes Region Joint Venture. Focus areas described below have substantial use by waterfowl during migration, particularly those coastal waters and marshes of Saginaw Bay, the Lake St. Clair and Erie complex, and the eastern Upper Peninsula along the St. Mary's River and northern Lake Huron. However, emphasis for Michigan and other "production states" in the Joint Venture is waterfowl reproduction and the maintenance of healthy populations of other resident wetland wildlife. The Michigan implementation strategy reflects that emphasis and does not include migration habitat objectives.

Greatest potential to increase Michigan wetland wildlife populations exists on relatively productive lake plain landscapes where agricultural practices have eliminated or significantly altered wetlands and associated uplands. These landscapes dominate the Saginaw Bay region and also exist in the southeast corner of the Lower Peninsula and the eastern Upper Peninsula. Significant management opportunity also exists in a large ground moraine region in the south central Lower Peninsula, another area dramatically altered by agriculture.

Focus areas are regionalized by their similar physiographic characteristics, thus similar wetland-wildlife management potential. They are divided into "primary," with greatest management potential for breeding waterfowl, and "secondary," areas with lower management potential. Secondary areas contain isolated locations of high importance to waterfowl, but the potential to significantly increase breeding waterfowl populations is generally much lower. Management focus areas are described below in a landscape context, with a brief discussion on significant landforms, soil characteristics, present vegetative cover, land use, and ownership. Management implications as well as general conservation concerns are included.

### **Primary Focus Areas (Figure 8)**

Rudyard Clay Lake Plain (Landscape characteristics: clay lake plain). This 666 mi<sup>2</sup> flat lake plain was largely conifer swamp, hardwood-conifer dominated uplands and wetlands, and coastal marsh before settlement. Currently, it is about one-half forested and one-half low intensity agriculture dominated by hay fields and pasture; short growing seasons and wet clay soils prevent wide scale cropping. It is covered by mostly clay soils that are poorly drained and readily pond, especially closer to the St. Mary's River (east side). Where wetlands have been constructed or restored within this vast grassland (hay and pasture), wildlife response has been dramatic. Mallards, blue-winged teal, gadwall, and American widgeon are the most common nesting duck species within the grasslands. American bittern, sora, bobolink, upland sandpiper, short-eared owl, and merlin are among the more unique species associated with these grassland/wetland complexes. Hooded merganser, black duck, American goldeneye, and ring-necked ducks can be found nesting in low densities within the forested landscape, whereas black and common terns, bald eagle, and

osprey regularly nest near Great Lakes shoreline. Land ownership includes private, U. S Forest Service (Hiawatha National Forest), and State (Lake Superior State Forest, Munuscong Wildlife Area).

Habitat objectives will emphasize acquisition of hayfields/pasture (4,000 acres) adjacent to existing public-owned grasslands, with wetland creation/restoration on new public grasslands (400 wetland acres) and privately owned hayfields/grasslands (1,600 wetland acres). Total duck production habitat objective = 20,000 acre increase (10:1 grassland:wetland ratio was used, as existing grasslands are expansive and provide abundant suitable nest cover).

2. Saginaw Lake Plain (Landscape characteristics: glacial lake plain and reworked till plain). This 2,390 mi<sup>2</sup> area was once mesic to wet-mesic forest, swamp forest, wet and wet-mesic prairie, and emergent marsh. Agriculture now dominates the landscape as a result of the lake-moderated climate and rich loamy soils. Poorly drained soils characterize the clay plain, but several wide sand channels from glacial melt-water streams are also present. Sand deposits have largely been reworked by wave action when the Great Lakes were at higher levels, resulting in dunes and spits typically higher and steeper than the clay lake plain.

Common waterbirds include mallards, blue-winged teal, yellowlegs, and American bittern. There are several rare plants, plant communities, and animals in this focus area. Wet and wet-mesic prairies were originally extensive, along with oak savannas, but these now remain only as small remnants, primarily on state-owned lands. Rare birds that occur in this area are short-eared owl, black tern, king rail, and Forester's tern. Land ownership is largely private. State game and wildlife Areas include Crow Island, Gratiot-Saginaw, Tobico Marsh, Shiawassee River, Nayanquing Point, Quanicassee and Wigwam Bay. Other public ownership includes Shiawassee National Wildlife Refuge, Bay City State Park, and the Au Sable River State Forest.

Habitat objectives will emphasize restoration/creation of functioning, productive wetlands (5,000 acres) and grasslands (15,000 acres) on private land, MDOT-managed land, and State/Federal lands, plus acquisition of agricultural lands adjacent to public lands to create/restore wetlands and grasslands. Total duck production habitat objective = 20,000 acre increase.

3. Huron Clay Plain (Landscape characteristics: clay lake plain, reworked till plain, and interlobate). This 3,690 mi<sup>2</sup> area once contained dry-mesic, mesic, and wet-mesic forest, oak savanna, swamp forest, wet and wet-mesic prairie, and emergent marsh. The focus area can be divided into two units, with the flat Sandusky Lake Plain (3,210 mi<sup>2</sup>) sloping gradually into Lake Huron and the interior Lum Interlobate (480 mi<sup>2</sup>) made up of end-moraine ridges and outwash deposits. About one-third of the lake plain has poorly or very

poorly drained soils; most of the remaining soils are well drained or quite variable. Soil drainage within the interlobate portion is also variable.

Mallards, great blue heron, and a variety of sandpipers are common waterbirds found in the area, whereas some of the rarer species found here include black tern, common tern, yellow rail, and bobolink. Rare plant communities include wet and wet-mesic prairie, plus oak savanna. Broader conservation concerns in this area are significant loss of wetlands and forest fragmentation due to residential development. The focus area is mostly private land. State game and wildlife areas include Fish Point, Deford, Rush Lake, Sanilac, Vassar, Port Huron, Minden City, Cass City, Murphy Lake, Tuscola, Verona, Wildfowl Bay, and Lapeer. State parks include Lakeport, Port Crescent, Sanilac, Petroglyphs, and Albert E. Sleeper.

Habitat objectives will emphasize restoration/creation of functioning, productive wetlands (5,000 acres) and grasslands (15,000 acres) on private land, MDOT-managed land, and State/Federal lands, plus acquisition of agricultural lands adjacent to public lands to create/restore wetlands and grasslands. Total duck production habitat objective = 20,000 acre increase.

4. Ionia Moraine (Landscape characteristics: medium and coarse textured end and ground moraine). This 5,864 mi<sup>2</sup> area once consisted of vast forests of beech, sugar maple, oak-pine complexes, and conifer and deciduous swamp. The focus area is now largely agricultural and can be divided into two units. The Lansing Ground Moraine (5,053 mi<sup>2</sup>) has gently sloping soils ranging from well drained to poorly drained and from sand to clay and muck. Most of the uplands have been converted to cropland, while most of the swamp forest has been converted to pasture. The much smaller Greenville Moraine unit (811 mi<sup>2</sup>) on the northwest side of the focus area is generally hilly with well-drained sands and loamy sands in uplands, but poorly drained soils in the lowlands.

Wood ducks, mallards, and Canada geese are common, whereas long-eared owl and peregrine falcon are examples of rare species found in the area. One of the rarest plant communities in the state, an inland salt marsh, occurs here. However, because of its fertile soils and intensive agriculture, few large tracts of forest or original wet prairie remain. Several public parcels dot the largely private landscape. State game or research areas include Portland, Lowell, Dansville, Mason, Flat River, Oak Grove, Maple River, Barry, Cannonsburg, Middleville, Rouge River, Stanton, Langston, and Rose Lake. Other public parcels are Seven Lakes and Sleepy Hollow State Parks and Manistee National Forest.

Habitat objectives will emphasize restoration/creation of functioning, productive wetlands (10,000 acres) and grasslands (20,000 acres) on private land, MDOT-managed land, and State/Federal lands, plus acquisition of agricultural lands adjacent to public lands to create/restore wetlands and grasslands. Total duck production habitat objective = 30,000 acre increase.

5. Washtenaw Lake Plain and Moraine (Landscape characteristics: glacial lake plain, end moraine, ground moraine, and outwash). Beech-maple forest, elm-ash forest, deciduous swamp, white and black oak savanna, wet prairie, and coastal marsh once covered this diverse focus area. Its 5,995 mi<sup>2</sup> can be divided into three units based on subtle landscape differences. On the east side of the focus area is the flat Maumee Lake Plain (2,309 mi<sup>2</sup>) with poorly drained wet loamy and clay soils prevalent. Human development and agriculture dominate the landscape. The Ann Arbor Moraines (1,632 mi<sup>2</sup>) is centrally located in the focus area. Loam and sandy-loam soils cover this unit, and they can be poorly drained in the lowlands. Agricultural development is extensive, but many of the lowlands and steeper upland ridges remain forested. The Jackson Interlobate (2,581 miles<sup>2</sup>) on the northwest side of the focus area has a relatively hilly terrain, with slopes on ground moraines of 0 to 6 percent, but slopes of 25 to 40 percent at end moraines. Soils range from sand to clay, and well to poorly drained. The Ann Arbor Moraines and Jackson Interlobate are covered primarily with agriculture, residential development, and forest and inland lakes.

Canada geese are very common throughout the interior of the focus area, and a variety of wading and shorebirds can be found along the Great Lakes shoreline. Rare birds found in this focus area are black tern, king rail, and prairie warbler. Rare plant communities are lake plain prairies and savannas. Within this largely private ownership exists several parcels of public land. State game, wildlife, and recreation areas include Petersburg, Pointe Mouillee, Lost Nation, Onsted, Gregory, Sharonville, Somerset, Ford, St. Clair Flats, St. John's Marsh, Erie, Unadilla, Rochester-Utica, Bald Mountain, Island Lake, Waterloo, Lake Hudson, Highland, Pinckney, Holly, Proud Lake, Pontiac Lake, Brighton, Ortonville, and Metamora-Hadley. State parks include Algonac, Sterling, and Hayes. There are also Metro and county parks: Oakwoods, Lower Huron, Lake Erie, Stony Creek, Metro Beach, Willow, Dexter-Huron, Hudson Mills, Parker Mill, Park Lyndon and Independence Oaks.

Habitat work that complements human development and high human populations (e.g., wetland-loss mitigation, landfill-cover management) will be especially important within this focus area. Restoration/creation of functioning, productive wetlands (5,000 acres) and grasslands (5,000 acres) will be emphasized on private land, MDOT-managed land, and State/Federal lands as well as acquisition of agricultural lands adjacent to public lands to create/restore wetlands and grasslands. Total duck production habitat objective = 10,000 acre increase.

6. Arenac Lake Plain and Moraine (Landscape characteristics: lake plain and fine end and ground moraine). This 1,470 mi<sup>2</sup> area was once mixed northern hardwoods, jack pine barrens, white and red pine forest, peatland and coastal marsh. The Standish (1,359 mi<sup>2</sup>) is the larger of the two units within the focus area, and it contains flat clay and sand lake plain. Wiggins Lake (111 mi<sup>2</sup>) is the small westerly landscape unit, with predominately well drained soils on ground and end moraine.

Great blue heron, sandhill crane, and a variety of shorebirds use Great Lakes shoreline and interior wetlands. Black tern and wet prairie exemplify rare species and a rare plant community. Land ownership is a mix of private and public. Public lands are Huron National Forest, Au Sable State Forest, Wigwam Bay Wildlife Area, and Harrisville and Tawas Bay State Parks.

Habitat objectives will emphasize restoration/creation of functioning, productive wetlands (2,000 acres) and grasslands (3,000 acres) on private land, MDOT-managed land, and State/Federal lands. Total duck production habitat objective = 5,000 acre increase.

7. Allegan Lake Plain and Moraine (Landscape characteristics: gently rolling end and ground moraine and flat lake plain). This 2,656 mi<sup>2</sup> focus area was largely beech-maple forest, oak forest and savanna, and open dune before settlement. Conversion to agriculture, including orchards and vineyards, describes much of the current land cover. Soil textures range from sands to clays and well drained to poorly drained. The focus area can be divided into three units: Berrien Springs Moraine (southeast 770 mi<sup>2</sup>) with mostly well drained soils, Southern Lake Michigan Lake Plain (west 1,356 mi<sup>2</sup>) with well drained to poorly drained soils, and Jamestown (northeast 531 mi<sup>2</sup>) with mostly clayey soils and high water holding capacity.

Wood ducks, blue-winged teal, and a variety of shorebirds can be found along the coast and interior wetlands. The prairie warbler and loggerhead shrike represent more rare species. Conservation concerns center around human development, loss of wet prairie, and pressures on unique marshes (between beech ridges) which house many distinct plant species typical of the Atlantic and Gulf Coastal Plains of the United States. Land ownership is mostly private. Public ownership includes Allegan, Muskegon, and Grand Haven State Game Areas, and Van Buren, Saugatuck, P.J. Hoffmaster, Holland, and Muskegon State Parks. The Manistee National Forest and Riverside County Park are also in the focus area.

Habitat objectives will emphasize restoration/creation of functioning, productive wetlands (2,000 acres) and grasslands (3,000 acres) on private land, MDOT-managed land, and State/Federal lands. Total duck production habitat objective = 5,000 acre increase.

8. Kalamazoo Interlobate (Landscape characteristics: outwash, sandy ground and end moraines). Before settlement this 3,511 mi<sup>2</sup> area was covered by oak savanna, oak hickory forest, swamp forest, bog, tallgrass prairie, wet prairie, and prairie fen. Upland prairie and most upland forests have been converted to agriculture. Forest cover remains on the steeper end moraines. The focus area can be divided in two, including the Battle Creek Outwash Plain (2,750 mi<sup>2</sup>) in the southeast half and west border, plus the Cassopolis Ice-Contact Ridges (761 mi<sup>2</sup>) laying on a diagonal from southwest to northeast. Soils are mostly well drained sands, loamy sands, and gravel in the focus area.

Wood ducks and American bitterns are commonly found using local wetlands, whereas the cerulean warbler is an example of a rare species found within the focus area. Development pressures are high in the area, threatening wetlands and forests, reducing their ability to support viable populations of many game and nongame species. Dominated by private land, the focus area does include some game and recreation areas: Barry, Crane Pond, Fulton, Gourdneck, Three Rivers, Fort Custer, and Yankee Springs.

Habitat objectives will emphasize restoration/creation of functioning, productive wetlands (3,000 acres) and grasslands (2,000 acres) on private land, MDOT-managed land, and State/Federal lands. Total duck production habitat objective = 5,000 acre increase.

### Secondary Focus Areas

9. Northern Continental High Moraines and Bedrock (Landscape characteristics: rolling hills, ground and end moraine ridges, exposed bedrock knobs, outwash plains, and some clayey glacial lake plains). The Michigan portion of this upper Great Lakes landscape ecosystem is roughly 10,000 mi<sup>2</sup>. Original vegetation on the thick till soils was northern hardwood forest dominated by sugar maple, eastern hemlock, basswood, and yellow birch, with some white pine. This forest type persists over most of the focus area. A combination of cold climate, resulting from high latitude and high continentality, plus relatively nutrient-poor, acidic soils has resulted in minimal use for agriculture and lower resident waterfowl populations. Northern forest wildlife populations are abundant, with high beaver populations maintaining a landscape dotted with temporary and semi-permanent wetlands used by waterfowl.

Habitat objectives will emphasize conservation / restoration of naturally functioning wetlands on public lands and conservation of oldgrowth hardwood riparian forest on private and public lands.

10. Northern Lacustrine Lake and Till Plain (Landscape characteristics: flat topography, lake plain, outwash plain, and end and ground moraine). The Michigan portion of this landscape ecosystem is roughly 7,000 mi<sup>2</sup>. Presettlement cover was largely diverse forest of northern hardwood, hardwood-conifer swamp, conifer swamp, and upland conifer, plus muskeg, open bogs and some open peatlands. Most of the focus area remains forested, with large expanses of swamp forest and low productivity peatland. Large areas of open muskeg, bog, and marsh are centrally located in the focus area and pasture can be found on loamy ground moraine primarily on the west side. Northern forest wildlife species are diverse, and beaver populations are high across the area.

Habitat objectives will emphasize conservation / restoration of naturally functioning wetlands and conservation of oldgrowth hardwood riparian forest on private and public lands.

Northern Lacustrine High Sand Plain and Moraines (Landscape characteristics: rolling terrain with some high elevations, lake plain, outwash plain, end moraine, and ground moraine). Original cover types in this 15,639 mi<sup>2</sup> focus area included northern hardwood forest, jack pine barrens, white pine forest, hardwood-conifer swamp, and conifer swamp. After intensive logging, farming was widely attempted and most was not successful. The focus area has largely reverted to forest. Fire suppression has also allowed barrens to become forested. Forest wildlife populations are generally abundant, including beaver.

Habitat objectives will emphasize conservation / restoration of naturally functioning wetlands and conservation of oldgrowth riparian forest on private and public lands.

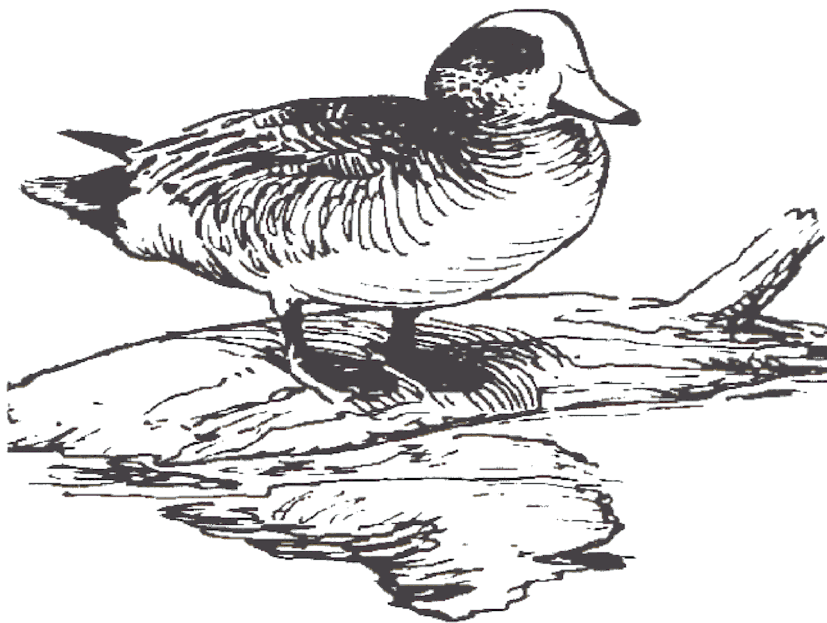
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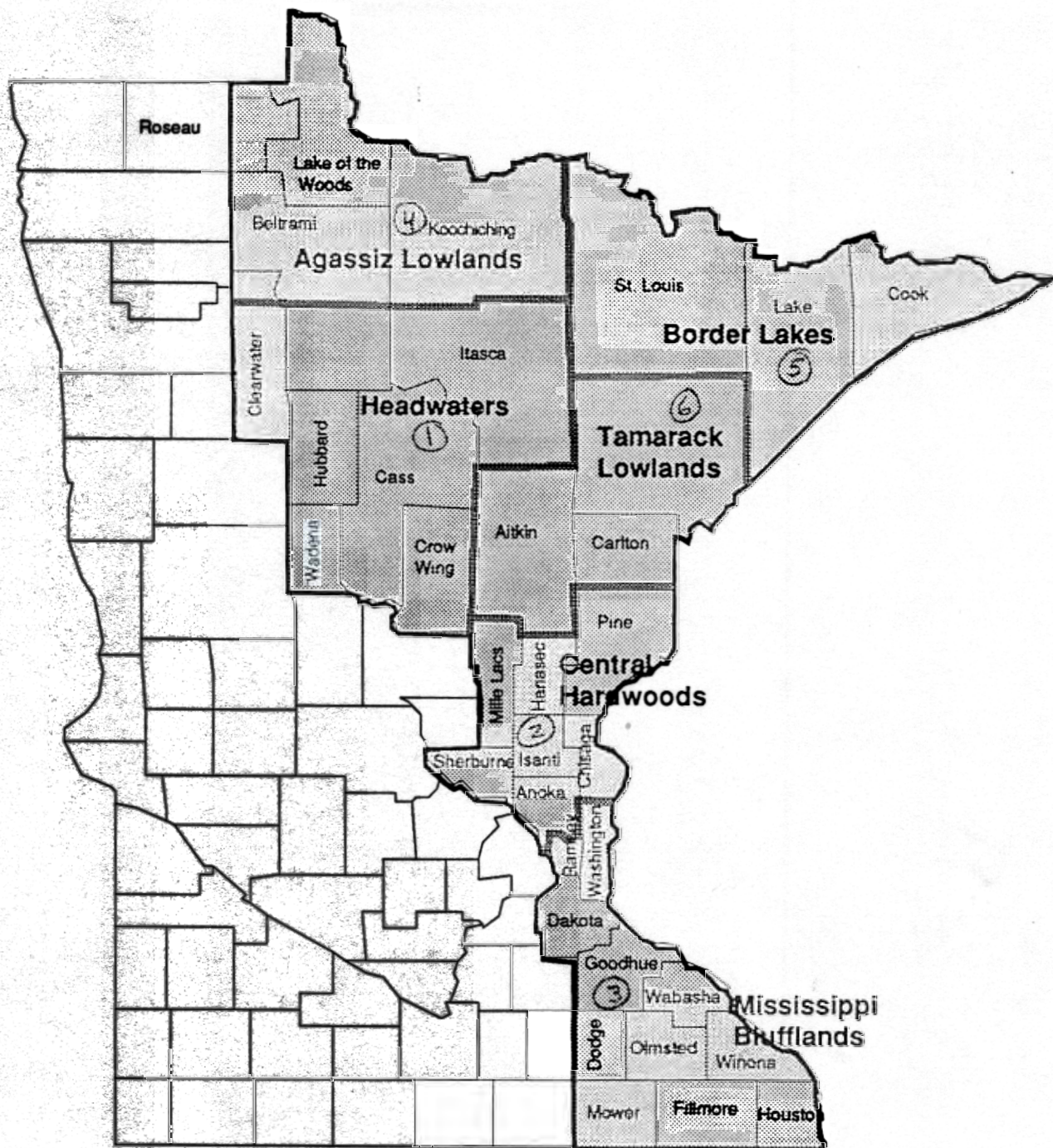
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Joint Venture focus areas in Minnesota.

## **MINNESOTA**

**Objective 1:** Conserve 4,580,000 acres of breeding waterfowl habitat, supporting an annual breeding duck population of 189,000.

### **Strategies**

- 1.** Prevent degradation of existing habitat through implementation and enforcement of programs and regulations to protect: wetlands and adjacent uplands, water quality, shorelands, floodplain, wild rice beds, and important migrational lakes.
- 2.** Improve waterfowl habitat on public lands and waters by: facilitating cooperative efforts between government agencies and private conservation organizations, providing pertinent habitat management information and assistance to land managers, and modifying existing programs and practices to better meet waterfowl needs.
- 3.** Improve waterfowl habitat on private and reservation lands and waters by: providing technical and financial assistance to landowners to improve habitat, conducting an information and education program that identifies waterfowl habitat improvement practices for private landowners, and publicly recognizing private landowners.

**Cost Estimate:** \$5 million annually for the next 15 years.

### **Focus Areas (Figure 9)**

Focus areas in Minnesota were identified as regions of similar physiographic characteristics and, hence, similar waterfowl management potential. Minnesota's best waterfowl production habitat is in the pothole country in the west and southwest half of the state (in the PPJV). Waterfowl production potential in the UMGLJV ranges from low to moderate, and includes the state's principal breeding range for ring-necked ducks, black ducks, wood ducks, common goldeneye, and hooded, red-breasted and common mergansers. The Joint Venture area also includes significant migration habitat.

The focus areas identified below are listed in descending order of importance as duck production habitat and potential for management. The first area (Headwaters) has high potential, the next three (Central Hardwoods, Mississippi Blufflands, Agassiz Lowlands) have moderate potential, and the final two (Border Lakes, Tamarack Lowlands) have low potential.

1. **Headwaters Focus Area** - This area is typified by numerous moderate-hardness lakes, abundant wetlands and flowages, and heavily-forested uplands. Relatively little land is in agricultural production, and most of this is dedicated to raising of cattle. The area is very important for waterfowl production and migration. It includes numerous lakes of tremendous significance (e.g., Leech, Winnibigoshish, Squaw, Bowstring, Upper Rice), several public management units (e.g., Chippewa National Forest, many sState forests, Mud-Goose Wildlife Management Area), all or portions of two large Indian Reservations, and much of the upper reach of the Mississippi River.

The area contains most of Minnesota's natural wild rice lakes. It is also a very popular region for tourism and lake cabins; development and recreational pressures are great.

An estimated 72,000 ducks were breeding in this area annually from 1975 to 1989. Implementation of this plan will increase breeders by 11,000 ducks.

2. **Central Hardwoods Focus Area** - This area is typified by abundant wetlands (mostly scrub-shrub or cattail) and relatively few shallow lakes. Uplands are mostly heavily forested with aspen or mixed hardwoods, with scattered cattle farms. The area offers moderate potential for waterfowl migration and production. Several important management areas include: six state forests, Sherburne National Wildlife Refuge (NWR), Mille Lacs Wildlife Management Area (WMA) and Carlos Avery WMA; some Indian Reservation lands are present. Development pressure is high, especially in the southern portion.

An estimated 23,000 ducks were breeding in this focus area annually from 1975 to 1989. Implementation of this plan will increase breeders by 3,450 ducks.

3. **Mississippi Blufflands Focus Area** - The east boundary of this focus area, defined by the St. Croix and Mississippi Rivers, is characterized by very well drained and steep topography. Portions to the west are flatter and contain limited amounts of wetland. Uplands are generally farmed with row-crops in rural areas; much of the area is heavily developed (e.g., Twin Cities Metro Area, Rochester). The focus area offers low to moderate potential for duck production, and is largely limited to wetland habitats in the northern counties and the floodplain of the Mississippi. The Mississippi River corridor is extremely important for waterfowl migration, and is largely under public management.

Important public management units in the focus area include: Richard Dorer State Forest, Whitewater WMA, Upper Mississippi NWR, and the Gores Pool WMA; some Indian Reservation lands are present.

An estimated 12,000 ducks were breeding in this focus area annually from 1975 to 1989. Implementation of this plan will increase this by 1,800 ducks.

4. **Agassiz Lowlands Focus Area** - Much of this area is characterized by extensive peatlands and boreal hardwood-coniferous forest. The southwestern portion, however, has good potential for improving aspen parkland wetlands, and gives the area a moderate potential for waterfowl management. Lake of the Woods, Nett Lake, and Upper and Lower Red Lakes are important migrational habitat. Significant public management units include: 5 state forests, Red Lake WMA, and numerous small WMAs; substantial Indian Reservation holdings are found in this area.

An estimated 24,000 ducks were breeding in this focus area annually from 1975 to 1989. Implementation of this plan will increase this by 3,600 ducks.

5. **Border Lakes Focus Area** - Much of this area is characterized by oligotrophic Canadian-shield lakes with shallow-soil uplands supporting boreal conifers. High blufflands on the southwest edge effectively drain much of this portion into Lake Superior. Waterfowl production and management is fairly limited, giving this area a relatively low production potential. Important public management units include: Superior National Forest, Voyageurs National Park, the Boundary Waters Canoe Area, and several state forests; moderate Indian Reservation holdings are in this focus area.

An estimated 14,000 ducks were breeding in this area annually from 1975 to 1989. Implementation of this plan will increase this by 2,100 ducks.

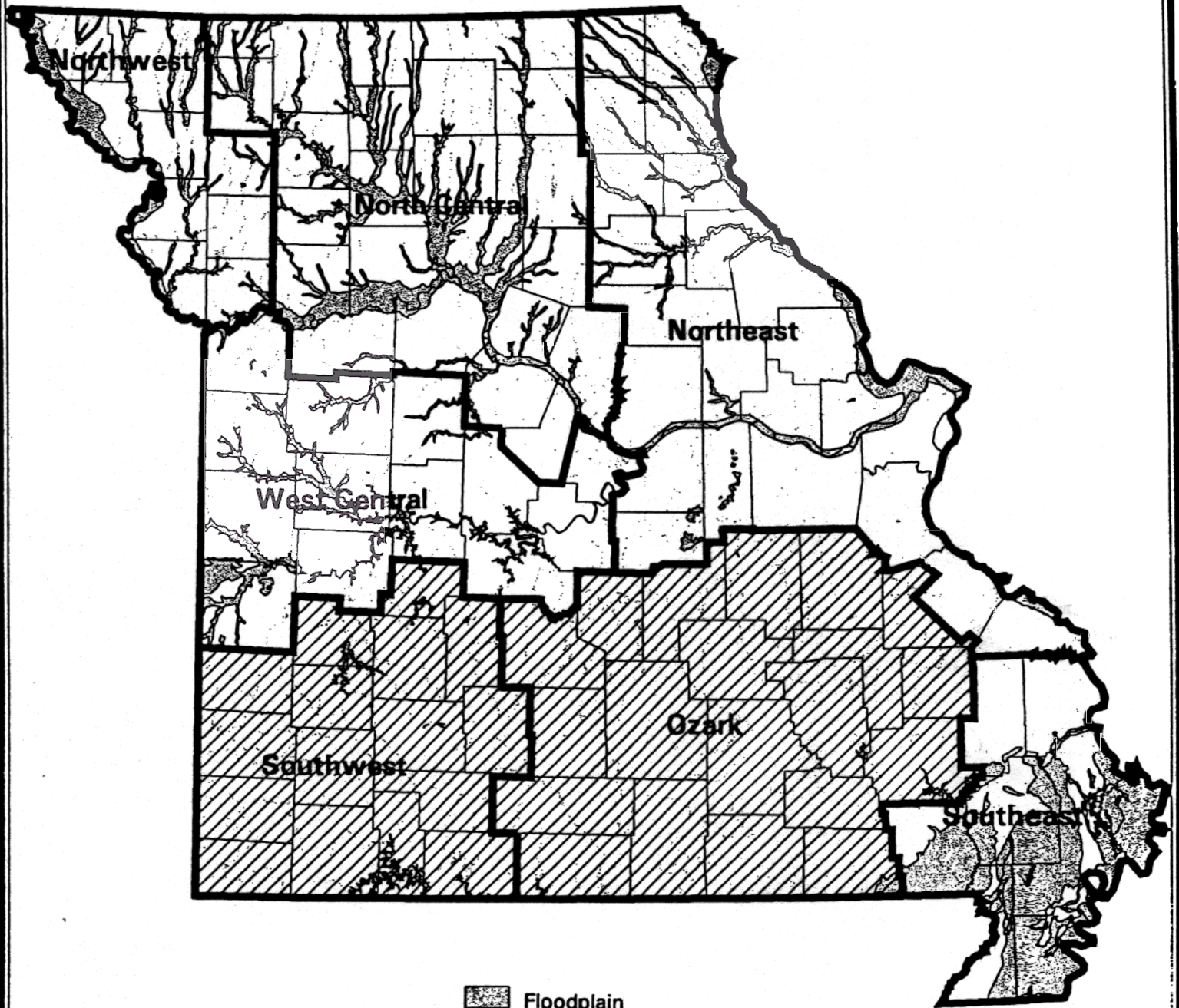
6. **Tamarack Lowlands Focus Area** - Much of the eastern portion of this area is well-drained, rolling topography with limited wetlands. Aitkin County, the St. Louis River estuary, and a few other areas provide fair to good waterfowl habitat, giving the area an overall low rating for production potential. Important public management areas include Rice Lake NWR and six state forests. Important wetlands habitats are also found on Indian Reservations in this area.

An estimated 19,000 ducks were breeding in this area annually from 1975-1989. Implementation of this plan will increase this by 2,850 breeders.



# Focus Areas for Wetland Acquisition & Development

## Missouri



-  Floodplain
-  Non-Joint Venture Regions
-  Digit Eleven Streams
-  County Boundaries
-  Region Boundaries

## **MISSOURI**

Wetland habitats in Missouri are almost exclusively associated with the many river drainages that dissect the state, including the Missouri and Mississippi rivers. These riparian wetlands are of unique importance to waterfowl and other wetland dependent migrating birds which funnel through the state during migrations.

Some 75,000 acres of managed wetlands are in public ownership in Missouri and contribute to the life history needs of migrating and resident birds. Nearly 14,000 wetland acres have been restored since 1989.

**Objective 1:** Conserve 126,583 acres of migratory waterfowl habitat.

**Objective 2:** Stabilize or increase populations of wetland and associated upland wildlife species in Missouri with emphasis on declining non-waterfowl migrating birds.

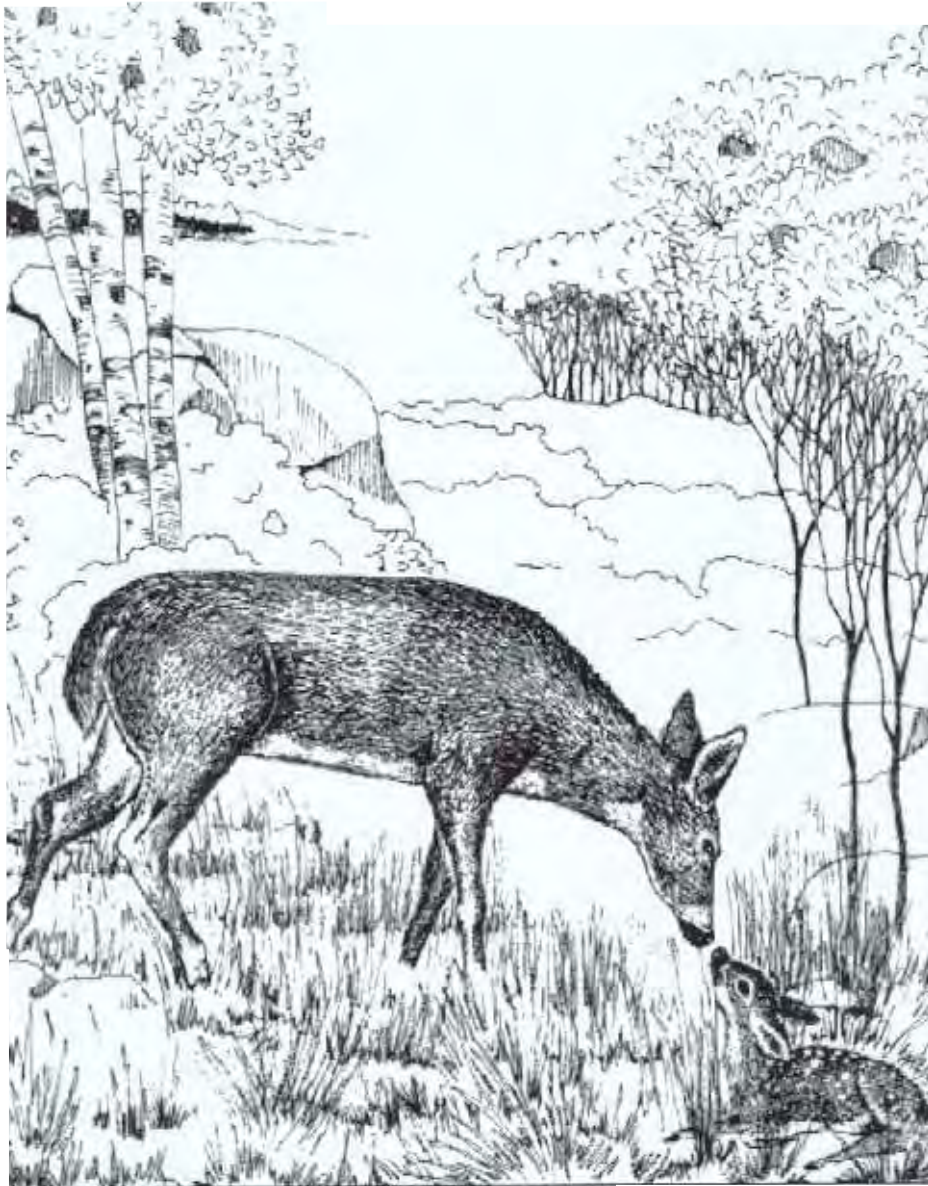
### **Strategies**

- 1 To permanently protect an additional 44,199 acres of wetland and associated upland habitat via fee title acquisition and long-term easements.
- 2 To restore 51,379 acres of wetland and associated habitat on public lands in Missouri.
- 3 To restore wetland and associated upland habitat on private lands in Missouri via short-term agreements.
- 4 Acquire land by fee title and/or easement as planned additions to existing wetland management areas.
- 5 Acquire lands by fee title and/or easement leading to the establishment of one new wetland management area in east-central Missouri and the completion of MDC acquisition targets for the "Partnership in Missouri River Lands."
- 6 Promote the protection and management of privately owned wetlands through the provisions of technical assistance, cost-share programs and other incentives.

**D. Cost Estimate:** July 2001 - July 2012: \$11,818,181 per year

### Focus Areas (Figure 10)

Future wetland programs in the Missouri portion of the UMR&GLR JV will focus on floodplain habitats within the counties and six wetland regions included in the UMR&GLR JV (see map). These floodplain regions comprise only 17% of the total area included in the JV (5.2 million acres, from a total of 30 million acres in the Joint Venture). Consequently, wetland activities are already focused on key land forms within the Joint Venture.









## NEBRASKA

**Objective 1:** Conserve 11,200 acres of migratory waterfowl habitat.

### **Strategies**

- a. Acquire 3,600 wetland acres plus associated uplands from willing sellers by fee title or perpetual easement.
1. b. Protect 600 wetland acres plus associated uplands through short-term programs, with voluntary cooperators, like the Conservation Reserve Program (USDA), Wildlife Habitat Improvement Program (state - NGPC and NRDs), others.
2. a. Restore hydrology to 1,200 acres of wetlands on newly acquired public lands by reconnecting to the river and reversing or eliminating degradation mechanisms.
2. b. Restore hydrology to 400 acres of wetlands on existing public lands by reconnecting to the river and reversing or eliminating degradation mechanisms.
2. c. Restore hydrology to 4,400 acres of privately owned wetlands plus associated uplands through short-term programs like Partners For Wildlife (USFWS), Wetlands Initiative Program (state), and others, by reconnecting to the river and reversing or eliminating degradation mechanisms.
2. d. Restore hydrology to 1,000 acres of privately owned wetlands plus associated uplands through short-term programs like Partners For Wildlife (USFWS), Wetlands Initiative Program (state), and others, by reconnecting to the river and reversing or eliminating degradation mechanisms.

**Cost Estimate:** \$2.82 million annually for the next 15 years.

### **Focus Areas (Figure 11)**

The focus of Nebraska's contribution to this Joint Venture is the riverine and associated floodplain wetlands of the Missouri River from the Dakota-Dixon County line to Nebraska's southern border. This is a distance of approximately 350 river miles. Prior to the 1930's, the Missouri was a wild, natural river that supported a tremendous number and diversity of fish and wildlife. The river was described as occupying a sandy channel that flowed between easily erodible banks 1,500 feet to over 1 mile apart with braided, sinuous

channels twisting among sheltered backwaters, sloughs, chutes, oxbows, gravel bars, sandbars, mudflats, snags, alluvial islands, deep pools, marshland, and shallow water areas (U.S. Fish and Wildlife Service 1980). The character of the Missouri was drastically altered between 1930 and 1970 as channelization and mainstem dams caused the river channel to narrow and deepen and associated floodplain wetlands to wither and disappear.

Before channelization changed the character of the Missouri River, the area was very important migration habitat for ducks, geese, swans, pelicans, and shorebirds (U.S. Fish and Wildlife Service 1980; U.S. Army Corps of Engineers 1978). It is still a valuable corridor linking the overlap of area used by migrating waterfowl between the Central and Mississippi Flyways. It is generally thought by regional biologists that in Nebraska the Missouri River, the Platte River, the Sandhills Region and the Rainwater Basin Areas are all interrelated based on regional wetland availability in any given year and/or spring and fall migration periods.

Objectives identified in this proposal relate to the Missouri River in its current, channelized state and are based on use of existing programs. Efforts are ongoing to restore the Missouri River to a more historic condition by returning the river to its floodplain on a more regular basis. This will require continued efforts to resolve conflicts with navigation interests, modification of current release schedules at Gavin's Point and the other mainstem dams to allow a more natural hydrograph and control of a defined floodplain corridor.





Joint Venture Boundary

Focus Areas

- 1** Lake Erie Marshes
- 2** Mosquito Creek/Pymatuning Complex
- 3** Killbuck Valley Marsh Complex
- 4** Killdeer Plains/Big Island Complex
- 5** Scioto River Valley

Joint Venture Focus Areas in Ohio.

## **OHIO**

**Objective 1:** Protect and maintain 109,300 acres of existing wetland habitat, and enhance/create/restore 22,000 acres of new wetland habitat, within 15 years.

### **Strategies**

1. Protect existing wetlands via fee title acquisition, perpetual easements and landowner incentives.
2. Enhance wetland habitat on private land via technical and financial assistance.
3. Enhance wetland habitat on existing and newly-acquired public lands.
4. Protect existing wetlands through regulatory means such as Army Corps of Engineers Section 10/404 permits, State laws, and new legislation.
5. Conduct a program of conservation education to improve the public's knowledge of wetland values and functions, wetland wildlife, and wetland management.

**Cost Estimate:** \$44 million (22,000 acres X \$2,000 per acre)

### **Focus Areas (Figure 12)**

The five focus areas and land within the boundaries of the joint venture in Ohio have excellent potential to assist in achieving the goals of both the NAWMP and UMR/GLR joint venture. These areas contain excellent black duck, waterfowl and wetland habitats, and contain areas that have high potential for additional protection, restoration and enhancement.

Ohio sits on the crossroads of the Atlantic and Mississippi flyways and annually hosts hundreds of thousands of waterfowl and other migratory wildlife. However, the current status of Ohio wetlands is not good; Ohio holds the dubious distinction of ranking second behind California for having lost approximately 90 percent of its original wetlands. Thirty-three of Ohio's 60 threatened and endangered species rely on wetlands during some stage in their life history, indicative of the magnitude of wetland loss. These species are of extreme importance to the people of Ohio, as are waterfowl. In a recent survey conducted by the Division of Wildlife, waterfowl were the second most popular "watchable wildlife," and they are highly regarded by waterfowl hunters as well.

Several other national and state initiatives can contribute to the goals and objectives of the Joint Venture in Ohio, including Partners in Flight, the Lake Erie Lakewide Management Plan (LAMP), several Remedial Action Plans (RAPS), Lake Erie Coastal Zone Management, Great Lakes Initiative, among others.

These efforts will provide an additional 22,000 acres of wetlands restored and enhanced resulting in an additional 2.2 million duck use days during migration. Because a large proportion of waterfowl hunters and birdwatchers utilize state and federal wetlands, a significant increase in public recreation is also anticipated through these actions.

**Lake Erie Marshes Focus Area** - The Lake Erie marshes have always been important migration areas for waterfowl. Hundreds of thousands of ducks and geese stop in this important marsh region as they migrate to the Atlantic coast, the Mississippi River bottoms or other wintering locations. This region is also the most concentrated staging area for black ducks in North America, with an average peak count of 51,500 recorded for the past 10 years. However, due to the revitalization of Lake Erie and the subsequent expansion of the fishing, and resort industries, wetlands and restorable wetlands are severely threatened. Past farming practices have eliminated all but coastal marshes, and now these are susceptible to marina and condominium development. There still exists a strong constituency devoted to wetland protection, restoration and enhancement in private duck clubs, nature groups, private landowners, and sportsmen. Besides waterfowl, the following species will benefit from wetlands conservation: bald eagle; peregrine falcon; king rail; common tern; black tern; many species of shorebirds; wading birds, warblers and other neotropical songbirds; Lake Erie water snake; Blanding's turtle.

2. **Mosquito Creek/Pymatuning Complex Focus Area** - This complex includes several large impoundments shared by Ohio and Pennsylvania (Pymatuning and Shenango reservoirs), other Ohio impoundments including Mosquito Creek Reservoir and the Grand River Wildlife Area with substantial areas of wetlands, bottomland hardwoods, beaver swamps, and riverine marshes. There has been and still exists some limited black duck nesting. The area attracts large numbers of migrating waterfowl including S.J.B.P. Canada geese, black ducks, mallards, wood ducks and teal. The remaining wetlands harbor a rich diversity of both flora and fauna, even in light of increasing development pressure and urbanization. Other species to benefit include: bald eagle; peregrine falcon; river otter; woodcock; several species of neotropical migrant songbirds and shorebirds; beaver; and osprey.
3. **Killbuck Valley Marsh Complex Focus Area** - This area is the largest remaining inland marsh complex in Ohio, which includes the Killbuck Marsh and Funk Bottoms Wildlife Areas. Several state and Federal endangered or threatened species exist here, including sandhill crane, eastern prairie fringed orchid, trumpeter swan and river otter. There are many parcels of existing wetland or highly restorable wetlands available for acquisition. Other species to benefit include: sandhill crane (only nesting location in Ohio), bald eagle

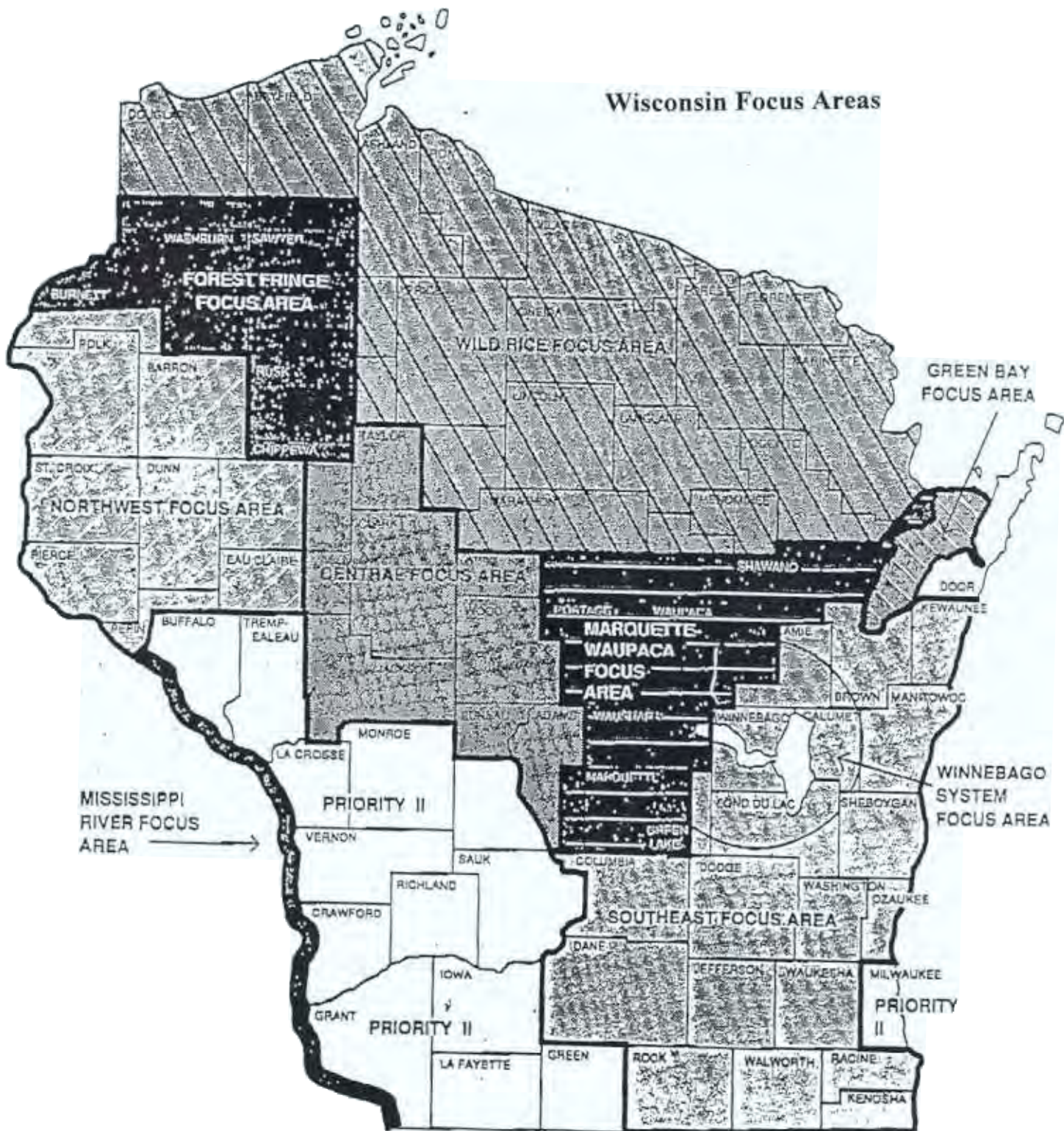
(potential recovery area); prothonotary warbler and other neotropical songbird species; osprey; and barn owls.

4. **Killdeer Plains/Big Island Wetlands Complex Focus Area** - This area is a wet meadow/prairie area that for the most part has been extensively drained and intensively farmed. However, a tremendous potential exists to restore wetlands in this area. These landscapes have high potential for restoration back to the original prairie pothole/oak savannah habitats that once existed over much of the area. Other species to benefit include: plains garter snake; numerous prairie plant species; bald eagle; woodcock; and barn owl.
5. **Scioto River Valley Focus Area** - This area currently has little state/federal/private land protected for waterfowl or wetlands values. However, this river valley serves as important black duck and mallard wintering and migration habitat. The Ohio Division of Wildlife has long desired to acquire land in this basin, but has only acquired 200 acres to date. The Deer Creek Wildlife Area has potential for wetland acquisition and development, and the Ohio Division of Wildlife has begun purchasing additional land in the area. Protection of key black duck areas is a strong reason to begin this project. The area has numerous flat plains, many of which have been cleared and farmed, and numerous small streams that remain open in winter in addition to the larger Scioto River. There are still bottomland hardwoods and many acres of cropland that flood and attract thousands of ducks. A major strategy would be to acquire a site in the Scioto River basin and then work with surrounding landowners to further protect, restore and enhance waterfowl and wetland habitat. Other species to benefit include: bald eagle; barn owl; several species of raptor (wintering), wading birds, and neotropical migrants; and Canada geese.





Wisconsin Focus Areas



## **WISCONSIN**

**Objective 1:** Conserve 1,747,250 acres of breeding waterfowl habitat (wetlands and associated uplands), supporting an annual breeding duck population of 560,000.

### **Strategies**

- 1** Protect existing wetland and associated upland habitat using fee title acquisition and perpetual easements.
- 2** Restore and enhance wetland and associated upland habitat on newly acquired lands.
- 3** Restore and enhance wetlands and associated upland habitat on private lands.
- 4** Restore and enhance wetland and associated upland habitat on existing public lands.
- 5** Protect and enhance wild rice habitat scattered throughout northern Wisconsin.
- 6** Protect existing wetlands with current and new legislation.
- 7** Conduct a program of conservation education to improve the public's knowledge of wetland values and functions, wetland wildlife, and wetland management.

**Cost Estimate:** \$7 million annually for the next 15 years.

### **Focus Areas (Figure 13)**

Wisconsin's prime duck producing regions are predominately pothole-type wetlands created by the Wisconsin glaciation. Priority I habitat, covering approximately 30,675 square miles, contains the highest breeding densities of ducks in the State. Counties designated as Priority I include all those approved for Federal Waterfowl Production Area acquisition and most of those previously designated Extensive Wildlife Habitat Program units for protection by the Wisconsin DNR. The Mississippi River system and Green Bay are also given Priority I status in recognition of their importance in the North American Waterfowl Management Plan. Also, existing and historic wild rice lakes in northern Wisconsin are included as Priority I areas.

The remainder of the State (about 23,750 square miles) is designated Priority II habitat. The southwestern driftless area, with the exception of the Mississippi and Wisconsin Rivers and their tributaries, has a general lack of wetlands and absence of breeding ducks, limiting waterfowl



nesting potential there. Wetlands in the northern part of the State are less valuable to ducks because they often lack surface water (e.g., wooded swamps and bogs) and, due to low fertility, preferred duck foods. Also, it is difficult to establish quality nesting cover on soils better suited to growing trees and brush. A greater rate of important wetland loss, better overall wetland fertility, and generally higher duck densities in much of the Priority I area give it a higher priority for Joint Venture activities than can be afforded Priority II habitats. However, individual projects within the Priority II portion of the State will be considered if their contribution to Joint Venture objectives is of the same magnitude as those projects in the Priority I areas.

In addition to breeding habitat, Wisconsin also provides important habitat for ducks migrating to and from the northcentral U.S. and Canada each spring and fall. Critical migration areas include State and Federal refuges, inland lakes (especially those of the Winnebago system, which historically were major canvasback concentration areas), wild rice waters, the Mississippi River and its tributaries, the Wisconsin River flowages and bottomlands, larger glaciated ponds and marshes, Green Bay and its coastal marshes, Lake Michigan, and Lake Superior.

Of the nine focus areas listed below, the first four are high priority, the next three are medium priority, and the last two are low priority within the state.

- a. **Southeast Focus Area** - This area includes parts of 20 counties. More than 50 percent of the area is cropland or pasture and less than 20 percent is wooded. About 13 percent is mapped as wetlands (875,000 acres). In the seven southeastern counties, 10-20 percent of the landscape is urbanized. Horicon Marsh, the largest cattail marsh in the United States, lies near the center of the focus area and just south of the State's largest inland lake (Winnebago). Mallards, blue-winged teal, and wood ducks are the principal breeding species. Black ducks, pintails, redheads, and ruddy ducks also nest in the area. This focus area contains most of the State's major migration habitat other than the Mississippi River. Historically, a majority of the continent's canvasback population passed through the region. Other migratory birds found in the focus area include: bald eagle, osprey, peregrine falcon, great egret, great blue heron, sandhill crane, double-crested cormorant, Forster's, common and black terns, American coot, gallinules, several species of grebe, snipe, rails, various raptors, yellow headed blackbird, and many other passerines.
  
- b. **Northwest Focus Area** - This area includes parts of 9 counties. Over 50 percent of the landscape is cropland and about a third is wooded except in St. Croix County, which is over 70 percent farmland and only 16 percent wooded. Land mapped as wetlands varies from 2 percent in Pierce County to 23 percent in Burnett County. Urban land area ranges from 2-10 percent. Mallards and blue-winged teal, wood ducks, shovelers, American wigeon, gadwall, redheads, ring-necked ducks, lesser scaup, ruddy ducks, and hooded mergansers nest in the area. Other migratory birds using this focus area include those listed above for the Southeast Focus Area. Attempts to restore trumpeter swan populations are underway in this area.

- c. **Winnebago System Focus Area** - A management plan for this area is being implemented. The Winnebago Comprehensive Management Plan (WCMP) meshes well with the Joint Venture thrust, although the WCMP deals with resources beyond waterfowl and has correspondingly greater funding needs. The 3 upriver lakes (Buttes des Morts, Winneconne, and Poygan) historically were river marshes rather than lakes and Lake Winnebago was bordered by shallow bays and marshes. Wild rice and wild celery were common throughout the system. Increased water levels caused severe wave action and erosion, resulting in long-term losses of thousands of acres of marsh habitat. Diversity and abundance of fish, migrant ducks (especially canvasbacks), and other marsh wildlife were negatively impacted.
- d. **Upper Mississippi River Focus Area** - The Mississippi River and its tributaries contain Wisconsin's most productive wood duck habitat. Nearly 94,000 acres of this riverine habitat and bottom lands, including 230 river miles and almost 2,000 miles of shoreline, are present within Wisconsin boundaries. A series of U.S. Army Corps of Engineers locks and dams maintains a 9-foot navigation channel. Over 1,250 plant, 290 bird, 20 reptile, 55 mammal, 110 fish, and 60 mussel species have been identified along the upper portion of the river. A significant amount of waterfowl habitat along the Upper Mississippi River is owned or controlled by the Corps and the Fish and Wildlife Service. Studies have shown that the Upper Mississippi River can provide significant habitat for duck production (Wetzel and Dahlgren 1990). Over 88,500 acres are included in the Upper Mississippi River National Wildlife and Fish Refuge and the Trempealeau National Wildlife Refuge. The Upper Mississippi River System Environmental Management Program (EMP) is funded by annual Federal appropriations.
- e. **Green Bay Coastal Marsh Focus Area** - Most of Green Bay's remnant coastal marshes lie along the west shore from the north edge of the City of Green Bay to the mouth of the Pestic River. The North American Waterfowl Management Plan recognizes this area as one of North America's 34 habitat areas of major concern. Green Bay continues to be an important migrational area for diving ducks and tundra swans. Islands off the tip of Door County are nesting sites for mallards, black ducks, gadwalls, mergansers, double-crested cormorants, and gulls. Cormorants, common and Forrester's terns and great blue and green-backed herons all nest along the Bay. Most of the publicly protected coastal marshes are part of the State's Green Bay West Shores Wildlife Area which stretches for 42 miles along the west shore of the Bay. To date, only 6,700 acres of the over 14,100-acre goal are under State ownership. Several small, rocky islands off Door County are included in the Fish and Wildlife Service's National Wildlife Refuge System. A Remedial Action Plan for addressing contaminant problems in and around Green Bay has been prepared by a joint technical and citizen's advisory committee. Focus area activities on Green Bay would support the Plan's objectives and strategies and would help in its implementation.

- f. **Wild Rice Focus Area** - This area is located all across northern Wisconsin and consists of individual sites where wild rice occurs. Wild rice is an important food source for both locally produced and migrant ducks. Activities within this focus area will be directed at maintaining and enhancing existing wild rice beds, restoring wild rice beds at historical sites, and establishing wild rice beds in new habitats. The 10 northernmost counties in this focus area have 6500+ lakes, covering about 272,000 acres, some 2,200 miles of streams (25,000+ acres) and 1.6 million acres of wetlands.
- g. **Marquette-Waupaca Focus Area** - This area in central Wisconsin includes parts of 9 counties. Land use in this transition zone is ½ agriculture, with the remaining area being wooded. Dairy farming is the major agricultural thrust, although alfalfa hay is a less common crop than in the Southeast and Northwest Focus Areas. Irrigated cash crops are grown on the sand and muck soils. All counties have at least 10 percent of their area mapped as wetlands, but many are drained and farmed. Breeding duck densities and overall waterfowl use, except for local areas, are lower than in the Southeast and Northwest Focus Areas.
- h. **Central Focus Area** - This area includes parts of 9 counties in an area that is less than half cropped and over a third wooded. Mallards and wood ducks are the primary waterfowl species. Habitat in this area is not uniformly distributed and is generally less productive than the Marquette-Waupaca Focus Area. Several existing Federal (Necedah National Wildlife Refuge) and State Wildlife Management Areas (Meadow Valley, Sandhill, Wood County, Dike 17 and Pershing) serve as the nuclei for additional habitat work. Part of the Chequamegon National Forest lies within the area.
- I. **Forest Fringe Focus Area** - This area is north of the Northwest Focus Area and includes parts of 7 counties. The area is basically northern lakes/forest farmland fringe habitat with above average breeding duck densities. The majority of waterfowl use in both the breeding season and during migration occurs on thousands of lakes of varying sizes in the region. Given a limited amount of funding, habitat projects in the Northern Fringe Focus Area will be a lower priority than elsewhere.

## COMMUNICATION AND EDUCATION

The “Outreach Strategy for the Upper Mississippi River and Great Lakes Region Joint Venture” was completed in 1997 (**Appendix 3**). This document is the communication and education planning strategy for the Joint Venture, with priority actions identified for Joint Venture partners up through the year 2000. The strategy will be continuously implemented, and priority actions will be revisited at regular intervals.

As outlined in the strategy, a highlight of the market research was the identification of a “new” (non-traditional) segment of the public that should be tapped for Joint Venture project support: the “young, urban wildlife viewer”. The expansion of Joint Venture objectives to include maximizing benefits for all wetland-associated wildlife shows the commitment of the partners to embrace all members of the public who enjoy wildlife.

## JOINT VENTURE ORGANIZATION AND RESPONSIBILITIES

The Upper Mississippi River & Great Lakes Region Joint Venture is an assemblage of partners in a specified geographic area, working together and individually to meet the population and habitat objectives of the region under the North American Waterfowl Management Plan. For coordination, administration and planning tasks, certain organizational entities have been formed, and are listed below.

**Joint Venture Office:** Lead coordination, information dissemination, and liaison responsibilities for the entire Joint Venture are performed out of this office, led by the UMR&GLR Joint Venture Coordinator.

Joint Venture Coordinator  
Upper Miss. River & Great Lakes Joint Venture  
U.S. Fish and Wildlife Service  
Whipple Federal Building  
1 Federal Drive  
Fort Snelling, MN 55111

**UMR&GLR JV Management Board:** This body provides general oversight and guidance for the Joint Venture, ensuring that commitment and support are maintained to achieve the Joint Venture objectives. Meetings of the Board are held twice annually, where project priorities, implementation strategies, and Joint Venture initiatives are discussed. Members include

administrators from Federal and state agencies, as well as private conservation organizations. Current membership is as follows:

Wisconsin Department of Natural Resources (Chair)  
Illinois Department of Natural Resources  
Indiana Department of Natural Resources  
Iowa Department of Natural Resources  
Kansas Department of Wildlife & Parks  
Michigan Department of Natural Resources  
Minnesota Department of Natural Resources  
Missouri Department of Conservation  
Nebraska Game and Parks Commission  
Ohio Division of Wildlife  
Ducks Unlimited, Inc.  
Pheasants Forever  
The Nature Conservancy  
U.S. Army Corps of Engineers  
U.S. Bureau of Indian Affairs  
USDA - Natural Resources Conservation Service  
U.S. Environmental Protection Agency  
U.S. Fish and Wildlife Service

**State Steering Committees:** Several states in the Joint Venture have organized steering committees to guide NAWMP project implementation. Committees consist of a broad coalition of private, local, State and Federal organization representatives; they meet on a regular or as-needed basis to discuss project priorities and bring together partners for funding and technical assistance. Current steering committees are listed below:

Michigan Steering Committee  
Minnesota Steering Committee  
Wisconsin Steering Committee  
Indiana Grand Kankakee Marsh Steering Committee  
Indiana New Madrid Project Area Steering Committee  
Iowa Steering Committee  
Kansas Steering Committee

## EVALUATION

Evaluation of habitat activities in the Joint Venture will be a priority over the next 15 years. It will be increasingly important to know the connection between habitat actions, particularly habitat restoration and enhancement activities, and wildlife response in terms of increased production, recruitment, or carrying capacity. The adaptive management approach of this Joint Venture will involve: 1) landscape level planning; 2) site specific habitat protection, restoration, and enhancement within priority focus areas; and 3) monitoring and evaluation of habitat activities with specific linkages to wildlife population response.

Site specific and/or landscape level monitoring, both before and after habitat actions are implemented, will serve to test the basic assumptions used to develop Joint Venture objectives. Below are some of the priority activities for Joint Venture partner monitoring and evaluation projects:

### OBJECTIVE 1: Breeding Duck Objective - Monitoring and Evaluation Activities

- 1 Test "Mallard Model" parameters for application in production areas east of the prairie pothole region. Parameters to be evaluated include:
  - a. Habitat preferences of breeding pairs
  - b. Nest site selection
  - c. Nest success and relationship to nest site selection
  - d. Hen survival
  - e. Duckling survival
2. Site specific and landscape level monitoring linking duck recruitment to habitat restoration projects (i.e., before/after evaluations).
3. Geographic Information System (GIS) mapping of wetlands (e.g., palustrine emergent, open water, forested) and grasslands in priority focus areas of the Joint Venture.
4. Production/recruitment potential of created wetlands within specific focus areas.

### OBJECTIVE 2: Mid-Migration Objective - Monitoring and Evaluation Activities

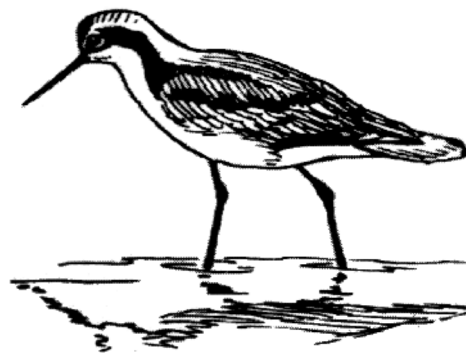
- 1 Test assumptions used in the development of the mid-migration objective:
  - a. Average number of days during fall migration that a duck spends migrating through the Joint Venture (i.e., duration).

- b. Quantification of duck use-days available (i.e., carrying capacity) by wetland habitat type (e.g. emergent, open water, forested).
  - c. Quantification of duck use-days available in croplands.
  - d. Evaluation of banding data to more accurately predict what proportion of the 100 million fall flight would migrate through and utilize wetland habitats within this Joint Venture.
- 2 GIS mapping of existing wetlands, both managed and natural, to more accurately plan protection/restoration strategies.

**OBJECTIVE 3: Nongame Objective - Monitoring and Evaluation Activities**

- 1 Document nongame use, productivity, and recruitment for site specific wetland/grassland restoration and protection projects within priority focus areas.
2. Monitor population trends of priority nongame species dependent upon wetland and grassland habitats.

While the above actions are referenced as priority monitoring and evaluation activities, Joint Venture partners will continue to work in cooperation with all interested parties to accomplish site specific projects. Available dollars and personnel continue to be the number one challenge to partners interested in developing long-term monitoring and evaluation projects.



## **Justification and Derivation of the Mid-migration Habitat Objective**

**Objective:** Conserve 532,711 acres of habitat capable of supporting 266 million duck use-days during annual fall migration under average environmental conditions.

### **Statement of Need**

Waterfowl management and research focused primarily on breeding habitat through the 1960's. Habitat and other factors that limit waterfowl populations outside the breeding season became more widely recognized during the 1970's and 1980's. Attention was focused on intensive management and development of wetland habitats used by waterfowl during winter and migration. A general synthesis of knowledge about basic biology and habitat requirements during breeding and non-breeding seasons has occurred since the North American Waterfowl Management Plan (NAWMP) was initiated in 1985. This led to greater understanding of the interrelationships of events in the annual life-cycle of waterfowl. As a result, more recognition is now given to effects of migration and winter habitat conditions on subsequent reproduction.

The NAWMP emphasizes protection, enhancement, and restoration of breeding habitats as the highest priority in attaining the goal of restoring duck populations to levels of the 1970's. Habitat protection and development outside principal breeding areas has been a second priority, necessary to ensure that sufficient winter habitat is available to support breeding population goals. Mid-migration habitat objectives have not been formally recognized or developed outside of Nebraska's Rainwater Basin, although other NAWMP Joint Venture areas currently include continentally significant migration habitats. Explicit recognition of migration habitats as a third priority of the NAWMP is a natural step in the Plan's evolution that is consistent with recent advances in understanding waterfowl ecology. Greater attention to migration habitat is needed to ensure that sufficient quantities of high quality habitats are available during fall and spring migration to support population goals of the NAWMP.

A greater focus on mid-migration waterfowl habitat will facilitate opportunities for partnerships and cooperative ventures with other conservation interests, particularly Partners in Flight and the Western Hemisphere Shorebird Reserve Network. Many of the wetland and associated upland habitats important to migrating waterfowl in the Upper Mississippi River and Great Lakes Region (UMR&GLR) Joint Venture region also are important breeding and migration habitats for passerine and webless migratory birds.

The UMR&GLR Joint Venture area includes some of the most extensive and important networks of riparian habitat corridors in North America. However, stream channelization, navigation impoundments, and flood control projects have adversely impacted wetland and riparian habitats (Bellrose et al. 1979, Reid et al. 1989, Havera and Bellrose 1985). Though some natural flooding always occurs, catastrophic floods since 1993 have focused increased national attention on the region. State and federal habitat development programs such as the



Upper Mississippi River System Environmental Management Program have been undertaken to mitigate or reverse habitat losses. Consequently, there is opportunity to coordinate NAWMP population goals and habitat objectives with planning and development of other habitat development projects in the region. The mid-migration habitat objective for the Joint Venture was developed to support NAWMP population goals without unduly diluting efforts to conserve and enhance breeding and wintering habitats in other joint venture areas.

The geographic location of the UMR&GLR Joint Venture makes the region a logical choice to implement a migration habitat objective under the NAWMP. The region encompasses substantial portions of the upper Mississippi, Illinois, lower Missouri, and Ohio river systems that are important waterfowl migration corridors. These riparian corridors funnel birds between the most important waterfowl breeding (Prairie Pothole/Parkland) and wintering (Mississippi Alluvial Valley/Gulf Coast) ranges in North America. Coastal and inland marshes of the Great Lakes states also provide continentally important migration habitat, particularly for diving ducks and other waterfowl that winter in the Atlantic Flyway (Bookhout et al. 1989). As a result, the Joint Venture is a primary migration corridor for 10 species of North American waterfowl and a secondary migration corridor for another 8 species (Reid et al. 1989).

### **Biological Basis**

Waterfowl undergo several important life-cycle events during migration and winter, including molt of body feathers, courtship and pairing, and deposition of nutrient reserves (Heitmeyer 1988a,b). These life history events impose special nutritional requirements in addition to energy demands. Protein, and other nutrients are best provided by natural food sources found in moist soil, marsh, and forested wetland habitats (Heitmeyer 1985). Agricultural crops are important sources of energy that supplement the diets of many dabbling duck species. Nutritional requirements become less specific after body-molt and courtship are completed. Consequently, a greater share of nutritional needs can be met from agricultural crops during winter than during fall and spring migration.

Fall migration generally coincides with flooding of shallow wetlands that provide moist soil seeds, mast, and invertebrates that are nutritionally important to migrating waterfowl (Reid et al. 1989). Lack of natural wetland habitats, whether caused by human activity or periodic drought on winter and migration areas force waterfowl to rely more heavily on agricultural crops that provide high energy, but are inadequate sources of required nutrients. Birds may be forced to forage at greater distances from natural wetland habitats where courtship and pairing occurs. Although agricultural crops provide needed sources of energy for migrating waterfowl, cereal grains do not provide all of the nutritional resources needed for timely completion of body-molts, courtship, and pairing that are essential to reproduction (Heitmeyer 1988a).

With less time and nutritional resources devoted to these processes, birds may arrive on breeding ranges in suboptimal condition and are less prepared to take full advantage of available nesting habitat. Conversely, when habitat conditions are most favorable during migration, birds can compensate for suboptimal habitat conditions on wintering and breeding areas. Birds that

complete spring migration in optimum condition should be able to reproduce at the highest level possible within the constraints of breeding habitat conditions. Thus, there is some intercompensation associated with habitat conditions that waterfowl encounter on breeding, wintering, and migration areas; and these ultimately affect reproductive success (Heitmeyer 1985). Such cross-seasonal effects are the biological explanation for observed correlations between fall body condition and survival (Haramis et al. 1986, Hepp et al. 1986), and between annual precipitation levels on migration and winter areas and subsequent reproduction (Heitmeyer and Fredrickson 1981, Kaminski and Gluesing 1987).

Increased attention to mid-migration areas is needed to ensure that availability of migration habitat does not hinder progress toward achieving population goals of the NAWMP. The focus of the mid-migration habitat objective is to protect, enhance, and restore wetland habitats along riparian corridors and on coastal and inland marshes within the UMR&GLR Joint Venture. This objective is timely in light of recent advances in understanding of waterfowl ecology, and is consistent with and supports the current goals of the NAWMP.

### **Derivation of the Mid-migration Habitat Objective**

The UMR&GLR Joint Venture mid-migration habitat objective is based on the total number of diving and dabbling duck use-days that the region will be expected to support in a normal year under the NAWMP population goal of a fall flight index of 100 million ducks. The Joint Venture is located mid-way along primary migration routes between mid-continent production areas and lower Mississippi Alluvial Valley (MAV) and Gulf Coast wintering areas (Bellrose 1968, Bellrose and Crompton 1970). Consequently, nearly all of the ducks expected to winter in the Lower Mississippi Valley (LMV) and Gulf Coast (GC) Joint Ventures will pass through the Joint Venture area. Additional ducks that winter in the eastern U.S. and along the Atlantic Coast also migrate through northern and eastern states within the UMR&GLR Joint Venture.

Derivation of the mid-migration habitat objective for the UMR&GLR Joint Venture is founded principally upon population goals established for the LMV and GC Joint Ventures (U.S. Fish and Wildlife Service, unpubl., Loesch et al. 1994). The LMV Joint Venture Evaluation Plan calls for supporting the wintering habitat needs of 8.7 million dabbling and diving ducks over a 110 day period during mid-November through February under average environmental conditions. The GC Joint Venture established a population goal of 13 million ducks, 6.8 million of which would migrate through the UMR&GLR Joint Venture area. LMV and GC Joint Venture population goals were based on mid-winter inventories (MWI) and breeding population goals of the 9 most common species of dabbling and diving ducks included in breeding population surveys. These surveys are the basis for NAWMP population goals, and include mallards, northern pintails, gadwalls, American wigeon, green-winged teal, northern shovelers, redheads, canvasbacks, and scaups (lesser and greater). Wood ducks and American black ducks also were included in the LMV Joint Venture population goal. Blue-winged teal were not included in the LMV or GC Joint Venture population objectives because most winter south of these areas.

Blue-winged teal were incorporated into mid-migration habitat objectives for the UMR&GLR Joint Venture by assuming that fall harvest within Joint Venture states reflects the importance of the region to meeting habitat needs of migrating blue-winged teal. Harvest of blue-winged teal in Mississippi Flyway states within the Joint Venture area (Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, Ohio, and Wisconsin) averaged 20% (range 13.9-29.6%) of the U.S. total during 1987-1994 (e.g. Martin et al. 1989, Martin and Padding, 1995). This proportion was applied to the NAWMP population goal of 5.3 million blue-winged and cinnamon teal to estimate the number of blue-winged teal that would migrate through the UMR&GLR Joint Venture area under the NAWMP population goal for this species.

Population goals of the GC and LMV Joint ventures were based on the NAWMP breeding population goal of 62 million birds, not the 100 million bird fall flight index goal that is a more appropriate basis for a fall migration habitat objective. Consequently, winter population goals of the LMV and GC Joint Ventures and the blue-winged teal breeding population goal were raised by 61% ( $[100-62/62]$ ) to reflect fall populations that would migrate through the Joint Venture area under the NAWMP fall flight index goal of 100 million birds. Without considering harvest or natural mortality, 14.0 million and 10.0 million ducks would pass through the UMR&GLR Joint Venture to winter within the LMV and GC Joint Ventures, respectively. An additional 1.7 million blue-winged teal also would migrate through the Joint Venture.

The total of 25.7 million ducks is a conservative estimate of the number of migrating ducks that UMR&GLR mid-migration areas will be expected to support under the NAWMP population goal of 100 million birds in the fall flight index. This total does not include:

1. Ducks other than the 10 most common species included in annual fall flight indexes, American black ducks, and wood ducks.
2. Ducks that migrate through the Joint Venture area that are produced outside areas where breeding populations are surveyed to determine fall flight indexes.
3. Ducks that migrate through the Joint Venture area but winter outside of the LMV Joint Venture and eastern half of the GC Joint Venture.
4. Blue-winged teal that migrate through the portions of Nebraska and Kansas within the Joint Venture area.
5. Ducks that winter within the Joint Venture area.

The total projected fall flight of 25.7 million ducks was multiplied by the number of days that waterfowl are thought to spend migrating through the region in an average year. Aerial survey data provided by state agencies that census fall migrating waterfowl were examined to determine general migration chronology during the 1970's through mid 1990's. Although total numbers of ducks counted varied considerably over these years, migration chronology was quite consistent. The first substantial numbers of ducks were counted in early October, numbers

peaked in November or December (varied with latitude), then declined by early January; a total migration period of approximately 90 days. However, all ducks counted were certainly not present within UMR&GLR Joint Venture area throughout the 90-day period. A 30-day migration period was chosen as a conservative estimate of the time that an individual bird might spend migrating through the Joint Venture area in an average year. This number was reasonable, considering weekly or bi-weekly changes in total ducks counted on migration areas in Wisconsin, Illinois, and Ohio. Thirty days is consistent with migration rates estimated from band recoveries (Bellrose and Crompton 1970).

Multiplying the population goal of 25.7 million ducks by the 30-day migration period produced a conservative estimate of 773 million duck use-days (DUD) that the UMR&GLR Joint Venture region would be expected to support during fall migration under the current NAWMP fall population goal.

The habitat acreage needed to support estimated duck use-days was based on a gross estimate of carrying capacity for non-agricultural habitats derived by Loesch et al. (1994) from energy values for moist soil areas and bottomland hardwoods reported by Reinecke et al. (1989). An estimate of 500 DUD/acre was selected after considering estimates of carrying capacities for harvested cropland (121-970 DUD/acre), moist soil (1,386 DUD/acre) and bottomland hardwoods (62-320 DUD/acre) used by Loesch et al. (1994). The 500 DUD/acre figure is justified considering that substantial amounts of wetland habitat in the UMR&GLR Joint Venture area is bottomland forest, and that marsh habitats and other wetland developments may not necessarily support the same carrying capacity as moist soil habitats considered by Loesch et al. (1994). Estimated carrying capacities observed from aerial surveys of selected migration sites in Missouri and Minnesota were 225-914 DUD/acre during the 1970's through mid-1990's.

The Joint Venture states (Ohio, Indiana, Illinois, Iowa, Missouri, Kansas, and Nebraska) with mid-migration habitat objectives summarized acreages of existing habitat currently managed by public or private interests to provide habitat for migrating waterfowl. Each of these states determined goals for additional migration habitat to be conserved or enhanced under this Joint Venture implementation plan. States collectively identified 366,202 ac of existing migration habitat and set goals to conserve and enhance an additional 166,509 ac (46% increase). Existing and newly conserved or enhanced habitats within mid-migration states would support 34.5% (266,355,500 DUD) of the 773 million DUD total, assuming a mean carrying capacity of 500 DUD/ac.

Mid-migration states provided estimates of total DUD during fall migration based on existing survey data and professional judgement. Migration habitats are not surveyed throughout the entire Joint Venture, but recent surveys totaled 123 million known DUD. Mid-migration states desired a 36% increase to 167 million DUD within surveyed areas. Although fall population surveys do not provide complete counts of migrating ducks, current known and desired future DUD objectives indicate that the habitat objective of mid-migration states to support 266 million DUD on mid-migration focus areas is reasonable and attainable.

Existing and newly conserved or enhanced production habitats in Wisconsin, Minnesota, Michigan, Indiana, Illinois, and Iowa also are projected to fulfill habitat needs of migrating waterfowl. However, wetland habitats managed to support production goals also are not expected to sustain the same level of use during migration as habitats managed specifically for migrating waterfowl. Production acreages included upland and wetland habitats with an approximate ratio of 3 to 1, respectively. The carrying capacity of wetland habitats within production focus areas was assumed to be 200 DUD/ac. This figure was reduced by 75% to estimate the migration habitat carrying capacity (50 DUD/acre) for production focus areas that included upland and wetland acreages. Production habitat states collectively identified 8,516,821 ac of existing production habitat and set goals to conserve and enhance an additional 602,063 ac (7.1% increase). Existing and newly conserved or enhanced habitats within production states would support 59.0% (455,944,000 DUD) of the 773 million DUD total, assuming a mean carrying capacity of 50 DUD/ac. Unmanaged habitats on private lands would support 50,700,300 DUD (6.6%).

The mid-migration habitat objective is conservative in that it does not specifically address habitat needs during spring migration. Spring migration habitat objectives are more difficult to establish because population survey data are more limited than in fall. Nutritional requirements of waterfowl differ between fall and spring, and food resources also may vary seasonally. Mid-migration habitats are important sources of nutrition for waterfowl during both fall and spring migration. However, fall migration habitat is assumed more limiting because the NAWMP population goal targets larger populations in fall (100 million ducks) than in spring (62 million breeding ducks). By providing adequate amounts of fall migration habitat, it is assumed that habitat needs also are met during spring migration.

### Assumptions

The energetic carrying capacity approach used to develop mid-migration habitat objectives for the UMR&GLR Joint Venture provided an effective way to link migration habitat objectives with those of other joint ventures and the NAWMP as a whole. Duck-use-days/acre was a convenient unit for converting population goals to migration habitat objectives. However, this process implicitly assumes that availability of food energy is a limiting factor that affects survival, behavior, and body condition of waterfowl that migrate through the Joint Venture area. Other factors such as physical structure and spacing of habitats, availability of specific nutrients, or security from disturbance also could be important, and perhaps more limiting than energetic carrying capacity.

Unmanaged deepwater and privately-owned habitats were assumed to be unimportant to meeting the energy needs of migrating waterfowl populations. This simplified the state-by-state accounting for existing habitat. Additionally, the implementation plan committee desired that habitat needs of migrating waterfowl should be met by habitats where long-term ( $\geq 10$  years) protection, management, or enhancement of waterfowl habitat on public and private lands is a high priority. Additionally, no attempt was made to prioritize focus areas to implement an interstate strategy that would optimize the spatial arrangement and regional landscape context of

migration habitats.

The mid-migration habitat objectives established for the UMR&GLR Joint Venture are biologically sound to the extent that they are robust to uncertainty about the following assumptions:

1. Availability of food energy during fall migration limits the capacity of the UMR&GLR Joint Venture to support population objectives of the NAWMP.
2. The procedure used to estimate duck-use-days during fall migration correctly accounted for numbers of waterfowl expected to migrate through the UMR&GLR Joint Venture under the NAWMP population goal of 100 million birds in the fall flight.
3. Waterfowl spend an average of 30 days migrating through the Joint Venture area.
4. Managed mid-migration habitats are capable of supporting an average of 500 DUD/acre; production habitats (including uplands) can support an average of 50 DUD/acre.
5. Estimated acreages of existing and potential future migration habitats are accurate.
6. Unmanaged private lands and deepwater habitats contribute minimally to the capacity of the UMR&GLR Joint Venture to support energy needs of migrating waterfowl.
7. Availability of fall migration habitat is more limiting than availability of spring migration habitat.
8. The spatial arrangement and landscape context of migration habitats does not affect the capacity of the Joint Venture to support the energetic needs of migrating waterfowl.
9. Protection, management, and enhancement of migration habitats for waterfowl also will improve habitats for non-waterfowl species of concern.

Evaluations are needed to test and validate the rationale and assumptions used to establish mid-migration habitat objectives for the UMR&GLR Joint Venture. The planning assumptions listed above represent specific hypotheses that would form the basis for effective evaluation and assessment of the mid-migration habitat objective. At the very least, evaluations should determine whether planning assumptions are robust to uncertainty and do not constrain progress toward achieving NAWMP population goals.

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Partners in Flight (PIF) is a voluntary organization of governmental agencies, non-governmental organizations, private industry, researchers, and individuals focused on the conservation of landbirds. Technical committees and regional and state working groups assess needs and make recommendations for research, monitoring, management and education in states and physiographic areas in the United States. Partners in Flight also is active in Canada, Mexico, the Caribbean, Central and South America.

Partners in Flight Bird Conservation Plans are being developed for the United States and are intended to complement the efforts of the North American Waterfowl Management Plan, the U.S. Shorebird Conservation Plan, and the North American Colonial Waterbird Conservation Plan. The PIF planning process typically takes an "ecoregion" or physiographic area approach, assuming that historic patterns of potential natural vegetation and associated abiotic factors shaped distributions, habitat requirements and ecological interactions of birds both at the species and community level.

The PIF planning strategy begins with an effort to identify species most in need of conservation attention. The most commonly used tool is the PIF Species Prioritization Scheme. Species are ranked on the basis of seven parameters: relative abundance, scope of breeding and wintering areas, threats to breeding and non-breeding habitats, importance of the area of given planning unit (indicates centers of abundance versus peripheral populations) and population trend. Importance of area and population trend typically are considered more heavily when identifying priority species for conservation plans for the US. High-ranking species that are declining at their centers of abundance are of greatest concern, whereas those with high importance of area scores and relatively stable population trends are considered species of conservation responsibility for the planning unit, and need to be monitored to insure long-term population stability.

Once priority species are identified for a given planning unit, the species are grouped into suites of species by broad habitat type. Habitat objectives are then developed based on scientific literature and expert opinion. Objectives take into account micro-habitat needs for nesting, foraging, etc. as well as minimum area requirements and factors influencing population replacement rates at the landscape level.

Development of PIF Bird Conservation plans began in 1995 and working documents are expected to be completed for planning units in the United States by 1999. There are four US Regional Coordinators and a National Coordinator guiding the planning process; information about the status of plans for a given State or physiographic area can be obtained through them (names and addresses are given at the end of the appendix). Current information on PIF planning and species prioritization can be accessed on internet at [www.PartnersInFlight.org](http://www.PartnersInFlight.org).

Six Midwest physiographic area planning units overlap the Upper Mississippi / Great Lakes Joint Venture: the Boreal/Hardwoods Transition, the Upper Great lakes Plain, the Dissected Till Plains, the Prairie Peninsula, the Osage Plains, and the Ozark-Ouachita Plateau (See physiographic area map). For each of the six areas, suites of priority species grouped by habitat type are given below, so that they may be considered where opportunity exists for coordinated conservation efforts between PIF and the Joint Venture. For more specific information, contact the PIF Midwest Regional Coordinator.

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**Species suites:**

*\* indicates species warranting some level of conservation attention at this time. Others are primarily species of conservation responsibility that should be accounted for in long term planning and monitoring.*

**Boreal Hardwood Transition (physiographic area 20):**

**Deciduous forest:**

Veery*	Rose-breasted Grosbeak*
Least Flycatcher*	Warbling Vireo*
Eastern Wood-Pewee*	American Redstart*
Wood Thrush*	Prothonotary Warbler (riparian)
Black-throated Blue Warbler	Scarlet Tanager
Black-throated Green Warbler	Nashville Warbler
Black-and-white Warbler	Great-crested Flycatcher
Broad-winged Hawk	Blue-headed Vireo
Eastern Phoebe (riparian)	Cedar Waxwing
Red-eyed Vireo	Black-capped Chickadee
Yellow-bellied Sapsucker	Ovenbird

**Coniferous forest:**

Kirtland's Warbler*	Canada Warbler*
Olive-sided Flycatcher*	Purple Finch*
Black-throated Green Warbler	Connecticut Warbler
Blackburnian Warbler	Red Crossbill

**Mixed forests:**

Purple Finch*	Warbling Vireo*
Blackburnian Warbler	Black-throated Green Warbler
Black-throated Blue Warbler	Nashville Warbler
Red Crossbill	Blue-headed Vireo
Black-billed Cuckoo	Ovenbird
Black-capped Chickadee	

**Shrub habitats:**

Golden-winged Warbler* (especially shrub wetlands)	
Field Sparrow*	Brown Thrasher*
Chestnut-sided Warbler	Mourning Warbler (especially shrub wetlands)

**Wetlands:**

Yellow Rail\*  
Sedge Wren  
Common Loon

Belted Kingfisher\*  
Swamp Sparrow

**Grasslands:**

Greater Prairie-Chicken\*  
LeConte's Sparrow\*  
Field Sparrow\*  
Sedge Wren

Nelson's Sharp-tailed Sparrow\*  
Short-eared Owl\*  
Bobolink

**Savanna:**

Eastern Wood-Pewee\*  
Northern Flicker\*

Warbling Vireo\*  
Black-billed Cuckoo

**Lakes and lakeshore:**

Piping Plover\*  
Peregrine Falcon

Bald Eagle  
Ring-billed Gull

**Upper Great Lakes Plain (physiographic area 16):**

**Grasslands:**

Henslow's Sparrow\*  
Grasshopper Sparrow\*  
Field Sparrow\*  
Sedge Wren

Bobolink\*  
Savanna Sparrow\*  
Short-eared Owl\*

**Shrub:**

Field Sparrow\*  
Brown Thrasher\*  
Gray Catbird

Willow Flycatcher\* (especially shrub wetlands)  
Golden-winged Warbler\* (especially shrub wetlands)  
Blue-winged Warbler

**Wetlands:**

Red-winged Blackbird

Song Sparrow

**Savanna:**

Red-headed Woodpecker*	Black-billed Cuckoo*
Northern Flicker*	Baltimore Oriole*
Warbling Vireo	Rose-breasted Grosbeak

**Deciduous forest:**

Cerulean Warbler*	Black-billed Cuckoo*
Red-headed Woodpecker* (especially riparian)	
Warbling Vireo	Rose-breasted Grosbeak

**Lakes and lakeshore:**

Bald Eagle

**Miscellaneous:**

Common Grackle	American Goldfinch
Peregrine Falcon	House Wren

**Dissected Till Plains (physiographic area 32):**

**Grasslands:**

Greater Prairie-Chicken*	Short-eared Owl*
Bobolink*	Dickcissel*
Henslow's Sparrow*	Grasshopper Sparrow*
Eastern Kingbird*	
Bells's Vireo* (grass with shrubs)	
Loggerhead Shrike* (grass with shrubs)	
Field Sparrow* (grass with shrubs)	

**Shrubs:**

Brown Thrasher*	Field Sparrow*
Prairie Warbler*	

**Wetlands:**

Black Rail\*

**Deciduous Forest:**

Cerulean Warbler\* (riparian)  
Red-headed Woodpecker\* (riparian)  
Chimney Swift\* (riparian)  
Worm-eating Warbler\*  
Chuck-wills-widow\*

**Savanna:**

Orchard Oriole*	Red-headed Woodpecker*
Baltimore Oriole*	Northern Flicker*

**Big Rivers:**

Piping Plover*	Least Tern*
Bald Eagle	

**Miscellaneous:**

Common Grackle	Peregrine Falcon
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**Prairie Peninsula (physiographic area 31):**

**Grasslands:**

Henslow's Sparrow*	Greater Prairie-Chicken*
Grasshopper Sparrow*	Dickcissel*
Bell's Vireo* (grass with shrubs)	
Field Sparrow* (grass with shrubs)	

**Wetlands:**

Black Rail\*

**Savanna:**

Red-headed Woodpecker*	Yellow-billed Cuckoo*
Eastern Wood-Pewee*	Great-crested Flycatcher*

**Deciduous forest:**

Cerulean Warbler*	Yellow-billed Cuckoo*
Red-headed Woodpecker* (riparian)	
Eastern Wood-Pewee*	Worm-eating Warbler*
Great-crested Flycatcher*	Chimney Swift (riparian)

**Lakes:**

Bald Eagle

**Miscellaneous:**

Common Grackle	
Peregrine Falcon	Chimney Swift (urban)

**Osage Plains (physiographic area 33):**

**Grassland:**

Greater Prairie-Chicken*	Lesser Prairie-Chicken*
Henslow's Sparrow*	Scissor-tailed Flycatcher*
Smith's Longspur*	Dickcissel*
Short-eared Owl*	Upland Sandpiper
Western Kingbird*	Lark Sparrow*
Eastern Meadowlark*	Eastern Bluebird

**Grass-shrub:**

Bell's Vireo*	Loggerhead Shrike*
Field Sparrow*	Harris Sparrow*

**Shrub/scrub:**

Black-capped Vireo*	Black-chinned Hummingbird*
Painted Bunting*	Brown Thrasher*
Common Poorwill*	

**Wetland:**

Black Rail \*



**Savanna:**

Red-headed Woodpecker\*  
Baltimore Oriole\*  
Yellow-billed Cuckoo

Orchard Oriole\*  
E. Wood-Pewee\*

**Deciduous forest:**

Cerulean Warbler\* (bottomland)  
Black-chinned Hummingbird\* (riparian)  
Chuck-will's-widow\*  
Yellow-billed Cuckoo

Worm-eating Warbler\*  
Mississippi Kite (riparian)  
E. Wood-Pewee\*

**Lakes:**

Bald Eagle

**Ozark/Ouachita Plateau (physiographic area 19):**

**Pine Savanna:**

Red-cockaded Woodpecker\*

Bachman's Sparrow\*

**Oak-hickory forest:**

Prairie Warbler\* (early successional)

Yellow-breasted Chat (early successional)

Swainson's Warbler\* (especially bottomland)

Cerulean Warbler\* (especially bottomland)

Worm-eating Warbler\*

Acadian Flycatcher\*

Louisiana Waterthrush\*

Kentucky Warbler\*

Whip-poor-will

Wood Thrush

Chuck-will's-widow

Eastern Wood-Pewee\*

Blue-winged Warbler

Hooded Warbler

Yellow-billed Cuckoo

Red-headed Woodpecker

Carolina Chickadee\*

Yellow-throated Warbler

Ovenbird\*

Pileated Woodpecker\*

Great-crested Flycatcher\*

Summer Tanager

Ruby-throated Hummingbird

Northern Parula

Scarlet Tanager

Eastern Phoebe (riparian)

Blue-gray Gnatcatcher

Tufted Titmouse

Indigo Bunting

**Oak-pine forest:**

Bachman's Sparrow\* (early successional)

Prairie Warbler\* (early successional)

Yellow-breasted Chat (early successional)

Acadian Flycatcher\*

Whip-poor-will

Chuck-will's-widow\*

Hooded Warbler

Yellow-throated Warbler

Pileated Woodpecker\*

Summer Tanager

Northern Parula

Blue-gray Gnatcatcher

Indigo Bunting

Scarlet Tanager

Wood Thrush\*

Eastern Wood-Pewee\*

Carolina Chickadee\*

Ovenbird\*

Great-crested Flycatcher\*

Pine Warbler

Tufted Titmouse

**Pine forest:**

Bachman's Sparrow\* (early successional)

Whip-poor-will

Wood Thrush

Eastern Wood-Pewee\*

Yellow-throated Warbler

Summer Tanager

Pine Warbler

Scarlet Tanager

Eastern Wood-Pewee\*

Hooded Warbler

Chuck-will's-widow\*

Carolina Chickadee\*

Great-crested Flycatcher\*

Northern Parula (riparian)

Yellow-breasted Chat

Indigo Bunting

**Oak savanna:**

Orchard Oriole\*

Summer Tanager

Painted Bunting\*

White-eyed Vireo

Great-crested Flycatcher\*

Eastern Bewick's Wren\*

Brown Thrasher\*

**Glades:**

Bachman's Sparrow\*

Field Sparrow\*

Prairie Warbler\*

**Grass/ shrub:**

Bell's Vireo

Loggerhead Shrike\*

Field Sparrow\*

Blue Grosbeak

**Grass:**

Henslow's Sparrow\*  
Eastern Bluebird

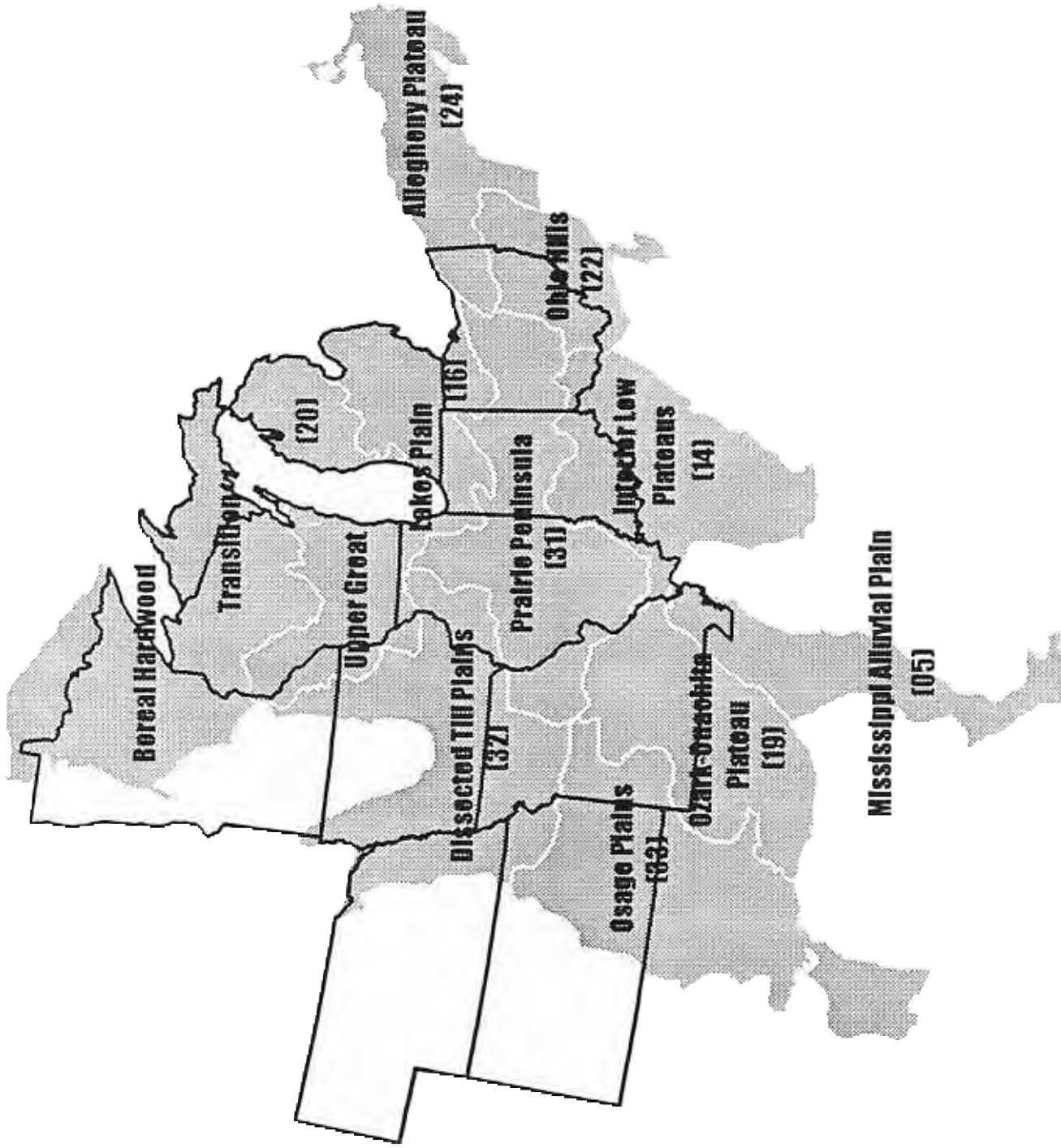
Dickcissel\*

**Lakes:**

Bald Eagle

**Riparian with bluffs:**

Peregrine Falcon



## Partners In Flight Physiographic Areas in the Upper Mississippi River & Great Lakes Region Joint Venture

***Public Outreach Project***  
**Expanding the Reach and Resources of the NAWMP**

**A Proposed Outreach Strategy for the Upper  
Mississippi/Great Lakes Region Joint Venture**

**February 27, 1997**

***Submitted by***

***Outreach Team***  
***Upper Mississippi/Great Lakes Region JV***

## **Executive Summary**

Although the North American Waterfowl Management Plan (NAWMP) is one of the largest and most successful conservation initiatives ever undertaken, much work remains to be done. This work will require partners, funding, and support above and beyond the significant levels that have been achieved in the past ten years.

This strategy details how the Upper Mississippi/Great Lakes Region Joint Venture can realize that support. The goals of the outreach strategy are to:

1. Increase the amount and sources of financial and in-kind support.
2. Increase the number and diversity of partners.
3. Increase the number of habitat projects in priority focus areas.

Specific objectives, audiences, and messages are identified in the strategy. Five priority actions were identified by the Outreach Team. Development and implementation of these actions offer tremendous opportunities for achieving the level of support needed for the NAWMP and UMJV:

Develop and distribute customized information packages articulating the benefits of NAWMP, UMJV, and NAWCA to target audiences (*Action 1.1*).

Develop a "ground, up" initiative to recruit support from foundations and corporations (*Action 2.2*).

Initiate more "Duck Habitat Day" types of events to appeal to the young, urban, wildlife viewer audience (*Action 4.1*).

Explore the feasibility of cooperative, direct-appeal campaigns centered around local projects to motivate new audiences to support the NAWMP/UMJV (*Action 4.2*).

Initiate a "Spark" recruitment effort (*Action 6.1*).

## **Purpose of the Outreach Project**

Although the North American Waterfowl Management Plan (NAWMP) is one of the largest and most successful conservation initiatives ever undertaken, much work remains to be done. This work will require partners, funding, and support above and beyond the significant levels that have been achieved in the past ten years.

The NAWMP Public Outreach Project was initiated by the International Association of Fish and Wildlife Agencies (IAFWA) through a federal aid administrative funds grant by the U.S. Fish and Wildlife Service. The goal of the outreach project is to provide NAWMP managers with the tools needed to:

1. Increase the number and diversity of NAWMP partners.
2. Increase the amounts and sources of financial and in-kind support.

The project has two phases:

- 1 Year 1. Conduct market research to assess public attitudes regarding waterfowl and wetland conservation and identify potential target markets, messages, and strategies for securing additional support. This phase has been completed.
2. Year 2. Based on the results of the market research, conduct pilot projects with two joint ventures to develop, implement, and evaluate outreach strategies. The results of the pilot projects will then be communicated to all NAWMP partners.

The Prairie Pothole Joint Venture and the Upper Mississippi/Great Lakes Region Joint Venture (UMJV) were chosen as the pilots.

## **An Outreach Strategy**

The purpose of this outreach strategy is to achieve the UMJV implementation plan. Although the UMJV had conducted a variety of outreach efforts with both internal and external audiences through the UMJV office and partners, a formal outreach strategy had not been developed prior to this pilot project.

This outreach strategy was developed by a team of people (see Appendix A) over a series of meetings and conference calls. The team looked carefully at past NAWMP and UMJV outreach efforts, market research results from this and other projects, and at the strengths and weaknesses of the UMJV.

The strategy identifies priority actions that the Team felt should be pursued over the next three years (1997-1999) to expand the "reach and resources" of the UMJV. The strategy is "strategic"-



it does not address everything nor include all worthy ideas. The details of implementing the strategy--how the actions will be carried out, by whom, and how they will be funded--should be developed following review of the strategy by the UMJV Management Board. Although the strategy was developed for the UMJV, it is designed to provide guidance and support for UMJV states and projects.

## **How the Strategy is Organized**

This draft of the outreach strategy contains the following sections:

- \* Goals
- \* Strategy Guidelines
- \* Message Guidelines
- \* Objectives, audiences, key messages, and actions for each goal
- \* Evaluation
- \* Appendix

## **Goals**

The goals of the UMJV outreach strategy are to:

1. Increase the amount and sources of financial and in-kind support.
2. Increase the number and diversity of partners.
3. Increase the number of habitat projects in priority focus areas.

## **Strategy Guidelines**

The following guidelines were used to develop the strategy and should be used to guide implementation:

1. Use existing communications channels of partner agencies and organizations to communicate priority messages.
2. Focus efforts on priority outreach actions. There are many outreach actions, both ongoing and new, that will help achieve the UMJV implementation. This strategy focuses on a few priorities.
3. Frame and communicate the outreach strategy in a compelling and exciting manner.
4. Recognize the diversity of habitats and people in the UMJV--target messages to specific, priority audiences.
5. Articulate and emphasize the link between local projects, the UMJV, and the NAWMP.
6. Capitalize on the concentration of humans and industry/commerce in the joint venture area.

## **Message Guidelines**

Detailed results and analyses of the market research as they apply to both the NAWMP and UMJV are contained in a handbook developed as part of this project. Based on the market research, a number of messages that resonate with many different audiences were identified. Following are considerations for messages that apply to all audiences.

- \* The cooperative, partnership approach embodied by the NAWMP made a lot of sense to people, especially in the UMJV area. This cooperative, partnership approach should be emphasized and communicated even more than it already is.
- \* Overwhelmingly, Americans feel waterfowl and wetlands are important to conserve. Messages should focus on motivating people to take specific actions.
- \* People feel it is important to conserve waterfowl and wetlands for "big picture" reasons. The most frequently cited were:
  - for future generations
  - part of ecosystem
  - wildlife habitat
- \* The value of wetlands for water quality and flood control is not widely known, but once explained to people, they find it a persuasive reason for conserving wetlands.
- \* Ducks and geese are not the only (or even the dominant) wildlife people thought of when asked what wildlife they associated with wetlands.
- \* Waterfowl were perceived to be in less "trouble" than wetlands.
- \* People are more likely to support efforts that affect them locally--messages should focus on local impacts of conservation, even if the activities are distant.

Following are six objectives for achieving the goals set forth in this strategy. Target audiences, key messages, and priority actions are listed under each objective.

**Goal 1      Increase the amount and sources of financial and in-kind support**

**Objective 1.   Increase the knowledge of and support for the benefits of the NAWMP, UMJV, and NAWCA to waterfowl, other migratory birds, and wetlands conservation**

*Audiences and Messages*

Concise information on the NAWMP and UMJV needs to be customized to the specific interests of three groups of audiences--conservation community, agriculture/private landowners, and policy-makers.

Conservation Community

**Audiences**

- \*      Current partner organizations
- \*      National level groups representing the "wildlife viewing" public such as Audubon, National Wildlife Federation, Partners in Flight, etc.
- \*      Conservation constituents at the local and state levels
- \*      Outdoor media

**Messages**

- \*      Tremendous accomplishments have been achieved through NAWMP
- \*      Your involvement is critical to the future of the NAWMP and waterfowl, wetland-associated wildlife, and wetlands conservation.

Agriculture Community

**Audiences**

- \*      State technical committees
- \*      Membership organizations--Farm Bureau, etc.
- \*      Agricultural media
- \*      NACD/state counterparts
- \*      NRCS/Agriculture Extension agents
- \*      Partner organizations--Pheasants Forever, Ducks Unlimited, etc.
- \*      Landowners
- \*      County drainage boards

**Messages**

- \*      Funding for private, state, and federal private lands programs is important--these are the types of conservation programs the agriculture community wants.

- \* Landowner/farmer friendly
- \* Voluntary, positive incentives, non-regulatory
- \* Non-controversial, cooperative, partnership-oriented
- \* Leveraged funding
- \* Local, on-the-ground activities
- \* Resource and conservation efforts international in scope

**Policy-makers**

**Audiences**

- \* Members and staff of Congress
- \* Other government agencies with related interests
- \* Popular, outdoor, and agriculture media

**Messages**

- \* Overwhelming public support for waterfowl and wetlands conservation (market research results)
- \* Funding for private, state, and federal private lands programs is important-- these are the types of conservation programs the agriculture community wants.
- \* Landowner/farmer friendly
- \* Voluntary, positive incentives, non-regulatory
- \* Non-controversial, cooperative, partnership-oriented
- \* Leveraged funding
- \* Resource and conservation efforts international in scope

***Action 1.1***      Develop packages of materials articulating the benefits of NAWMP, UMJV, and NAWCA. The packages should be distributed to existing partner organizations and the audiences listed above.

The packages should be customized to the different audiences and should provide information on the priority issues--for example, the conservation titles of the farm bill and the reauthorization of NAWCA. Efforts should be coordinated with other joint ventures to avoid duplication of effort.

**Objective 2. Increase corporate and private foundation contributions toward wetland/grassland conservation**

**Audiences**

- \* Corporations
- \* Foundations

**Messages**

- \* How NAWMP/UMJV conservation efforts are linked with other important societal issues (education, water quality, etc.)
- \* The local impact of conservation efforts
- \* Partnership approach taken by NAWMP/UMJV
- \* Public support for waterfowl and wetlands conservation
- \* How their support of NAWMP/UMJV will benefit them

**Action 2.1** Develop some case studies of successful efforts--e.g., DOW Chemical in Michigan, NIPSCO in Indiana.

**Action 2.2** Develop a ground, up initiative. First, identify and build support with foundations and corporations at the local level. Then, roll that support into a proposal that is carried to a regional or national level. For example, a corporation that supports the Grand Kankakee project may be willing to support other projects as success with the local project is achieved.

Successful implementation of this action will require considerable communication and coordination among partner organizations. Local project proponents also must be involved throughout the process.

**Objective 3. Increase funding through state-funded programs (i.e., REAP, RIM) and increase appropriations to state agencies for wetland/grassland conservation**

**Audiences**

- \* State level partners

**Messages**

- \* State level matching funds are needed for federal and private funds that are available

**Action 3.1** Provide information contained in the package described in *Action 1.1*.

**Action 3.2** Conduct an assessment of state needs to determine if they need help from the joint venture level.

**Goal 2 Increase the number and diversity of partners**

**Objective 4. Increase participation by new partners and "non-traditional" (new) segments of the public**

### **Audiences**

In terms of new segments of the public, the market research indicated potential support for the UMJV/NAWMP may come from:

- \* younger people (less than 45)
- \* urban residents
- \* people who identify themselves as wildlife viewer/enthusiasts

These have not been the traditional targets for NAWMP outreach efforts.

### **Messages**

The **Message Guidelines** section of this strategy articulates messages that will appeal to these audiences. In addition, it is critical to communicate that "Individuals are important in conserving wildlife and wetlands, and you can make a difference!" Then articulate the specific things they can and should do.

#### **Action 4.1**    Initiate more "Duck Habitat Day" types of events.

Duck Habitat Day was held in Minneapolis in 1996 and again in 1997. Both times, the one-day event attracted over 5,000 participants. Based on the market research and on the success of Duck Habitat Day, the features that likely attracted people are:

- in/near urban areas and/or focus area projects
- hands-on
- family orientation
- positive messages concerning habitat
- feeling of accomplishment
- local action in their backyard that addresses big picture concerns--
- conservation of wildlife for future generations

It is also assumed that a significant portion of these participants were from the young, urban, wildlife viewer audience. To test these assumptions, 190 participants at the 1997 event were surveyed to find out who they were, why they came, how likely they are to support conservation efforts. Results of the survey will be analyzed and incorporated into the outreach strategy.

Duck Habitat Day should be written up as a case study. Similar efforts should be developed. Although the Minnesota Duck Habitat Day focused primarily on promotion and education, similar future events could have a

stronger fund-raising and partner recruitment orientation. The same concepts could be applied to dedications and special events such as "clean-up" days.

**Action 4.2** Explore the feasibility of direct-appeal campaigns.

The potential for appealing to and recruiting new supporters through direct mail should be explored. The features of the campaign that would be different than most direct mail efforts by waterfowl/wetlands conservation organizations include:

- Relate the appeal to a specific project or projects.
- 2. Target the mailing to a relatively small area, at least a state or region of a state.
- 3. Emphasize the partnership approach (in fact, the appeal itself may even be cooperative, featuring a variety of organizations).
- 4. Provide multiple ways for people to take action.

**Action 4.3** Communicate the results and analyses of the market research to the conservation community in the UMJV so they can use the information to recruit new partners through their organizations and efforts.

**Objective 5. Increase voluntary participation of private landowners in wetland/grassland conservation**

**Audiences**

- \* State technical committees
- \* Membership organizations--Farm Bureau, etc.
- Agricultural media
- NACD/state counterparts
- \* NRCS/Agriculture Extension agents
- \* Partner organizations--Pheasants Forever, Ducks Unlimited, etc.
- \* Landowners
- \* County drainage boards

**Messages**

- \* Landowner/farmer friendly
- \* Voluntary, positive incentives, non-regulatory
- \* Large waterfowl populations and major bird migration corridor
- \* Non-controversial, cooperative, partnership-oriented
- \* Funding is leveraged



- \* Local, on-the-ground activities
- \* Resource and conservation efforts international in scope

**Action 5.1** Develop a special effort involving the agriculture community to communicate the benefits of NAWMP/UMJV and recruit participants.

- \* See Objective 1.
- \* The effort should focus on increasing the use of voluntary wetland/grassland easements as management tools.
- \* Activities might include:
  - One-on-one contacts
  - Tours/field trips
  - Exhibits at ag./farm shows
  - Getting involved in state steering committees

**Action 5.2** Invite the NRSC to participate in UMJV.

**Action 5.3** Target technical assistance (wetland restoration, etc.) to highest priority focus areas.

**Goal 3 Increase the number of habitat projects in priority focus areas**

**Objective 6. Motivate and encourage local individuals or "sparks" to start projects in focus areas**

**Audiences**

- \* Existing sparks and partners
- \* Potential sparks

A profile of the types of people who successfully spark projects might include:

high interest in wildlife	respected in community
sincere	high energy
visionary	strong tie/connection to local
credible	landscape

**Messages**

- \* On-the-ground activities
- \* Local
- \* Partnerships/diversity of cooperation

- \* Voluntary, positive incentives, non-regulatory
- \* Non-controversial
- \* Landowner/farmer friendly
- \* Leveraged \$

***Action 6.1*** Initiate a "Spark" recruitment effort.

- \* The effort would be designed and, to the degree possible, implemented by existing sparks.  
As a first step, ask sparks from successful projects within the joint venture to get together at a facilitated meeting to outline what it will take to recruit and involve more people like them. What are the sparks' needs? What obstacles do they encounter in trying to initiate and implement projects?
- \* The initial effort will be funded by USFWS/UMJV.
- \* Consider involving some observers such as Congressional staff in the meetings.

***Action 6.2*** Conduct more quality dedications, celebrations, and special events.

- \* Build them around real, on-the-ground activities and programs.
- \* Consider holding them at the beginning of a project.

## Evaluation

Evaluation of the goals, objectives, and actions detailed in this strategy is critical to the long-term success of outreach efforts. The basic questions are:

- \* Were the **actions** implemented? How successful were they? What improvements or changes need to be made to them?
- \* Were the **objectives** achieved? Why or why not? Should the objectives be modified? As UMJV outreach efforts are refined, quantitative objectives should be developed.
- \* Are the **goals** being achieved? To what degree? Do the objectives need to be modified or added to in order to achieve the goals?

An assessment of each of the questions should be made by the Outreach Team annually in cooperation with the Management Board and states. In addition, the following "Evaluation Actions" should be undertaken to evaluate specific objectives or actions.

### **Objective 4. Increase participation by new partners and "non-traditional" (new) segments of the public**

Evaluation Action: Conduct a telephone survey of adults in the UMJV area to assess changes since the first survey was conducted in 1996 and, more importantly, to further explore public beliefs, attitudes, and behaviors.

#### **Action 4.1** Initiate more "Duck Habitat Day" types of events.

Evaluation Action: Surveys of participants should be conducted at each event to assess how they heard about it, why they came, who they are, etc. If possible, an in-depth assessment of participants following the event should be conducted. After attending the event, did people become more involved in waterfowl/wetland conservation? What types of people did/did not become involved? Why/why not?

#### **Action 4.2** Explore the feasibility of direct-appeal campaigns.

Evaluation Action: Evaluation of the direct appeal campaigns should be built into the design. The overall success will be measured by the response--different messages and delivery mechanisms should be tested.

#### **Action 6.1** Initiate a "Spark" recruitment effort.

Evaluation Action: Survey meeting participants to assess their effectiveness.

## Appendix A

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**Objective 2: Migration habitat and fall duck use-days**

**2A.** Did you conduct a fall waterfowl migration census this year?

Estimated statewide duck use-days for Joint Venture area?

Comments?

**2B.** Migration habitat acres conserved this year:

Name of Focus Area	# acres protected (wetland/upland)	# acres restored (wetland/upland)	# acres enhanced (wetland/upland)

Total acres migration habitat conserved (from above): \_\_\_\_\_

1998 JV Plan Update habitat goal (new acres): \_\_\_\_\_

% of goal reached this year: \_\_\_\_\_ To date: \_\_\_\_\_

**Objective 3: Nongame wildlife conservation accomplishments**

Please give highlights of nongame conservation gains associated with above accomplishments, with emphasis on declining migratory birds (attach additional pages if necessary):